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Back Cover: **Terry and the Pirates, Milton Caniff**

Cover: **A composite of true action photos taken in Vietnam about the time of "LAMSON 719"—this month's lead article, beginning on page 2. Photos at top right show a 50 caliber bullet hole in the left window of a Huey piloted by CW4 Bob Rench and copilot CW4 Mike Harbin. The round was taken in Laos at LZ Delta, in March 1971 during LAMSON 719.**

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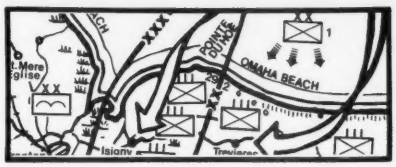

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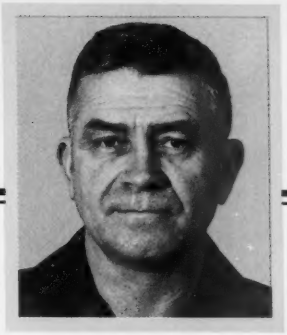


Mission: Air Traffic Control

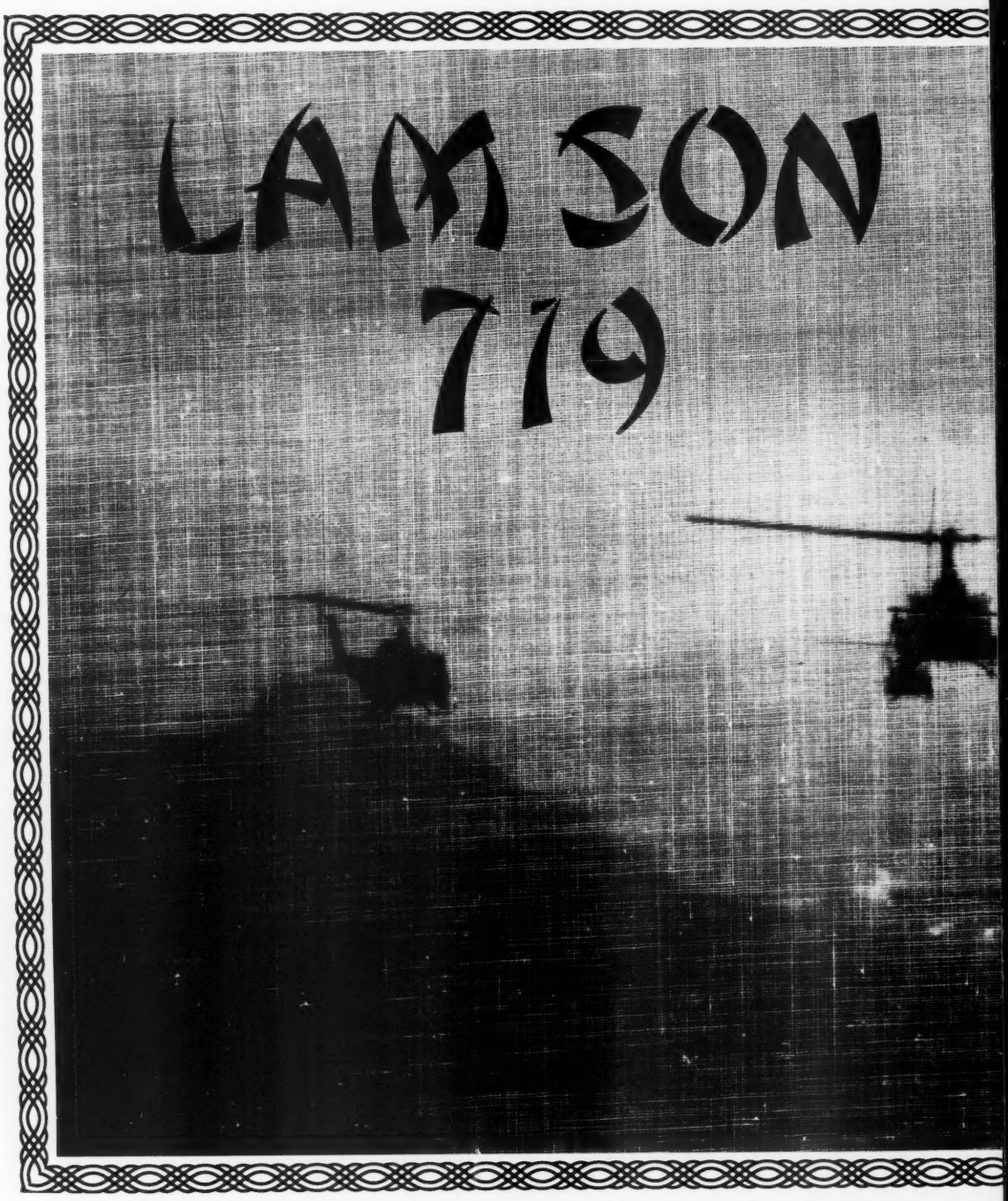
THE RAPID PACE of the modern air-land battle requires timely employment and synchronization of Army Aviation assets. A key element in this process is Army airspace command and control (A2C2). The proper integration and use of air traffic control (ATC) services, a subset of A2C2, can provide the Army Aviation commanders the services required to allow their fleets to operate at their maximum potential. In view of this, the Department of the Army (DA) made the decision to transfer proponency for ATC on 6 December 1985 from the Information Systems Command (ISC) to the U.S. Army Aviation Center, which is proud and ready to be the leader for the ATC mission (see page 8, May 1986 *Aviation Digest*).

The U.S. Army Training and Doctrine Command, with assistance from the Army Materiel Command and ISC, was tasked to provide the transfer implementation plan. The plan establishes a separate directorate at the Aviation Center that will serve as a DA field operating agency for worldwide Army ATC operations. Also, all ATC units will fall under the major Army command they support, as opposed to the Signal Command. Fixed-base assets will be transferred from the Directorate of Information Management to the Directorate of Plans, Training, Mobilization and Security. In Europe and Korea, the tables of distribution and allowances augmentation to the battalions will transfer to U.S. Army, Europe, and Eighth U.S. Army.

A2C2 is the governing concept for the employment of air traffic assets. At a minimum, A2C2 includes tactical landing systems, airspace management, command and control, and position navigation systems. Within this framework, ATC provides two vital functions: flight following singleship aircraft and instrument meteorological conditions (IMC) recovery operations. Today's quick reaction missions and lethal threat environment make these missions quite difficult to perform, yet essential to any Army Aviation operation. Aviation commanders and ATC elements must work closely together to ensure that ATC services are provided in the right places, at the right times, for every mission. As a general rule, due to the threat, IMC flight will not be conducted in the division area. However, aviation and ATC units must plan for inadvertent IMC conditions. ATC units will be heavily relied upon at corps and echelons above corps (EAC) for IMC and visual meteorological conditions flight. Also, ATC units should be employed for airspace deconfliction, en route navigation assistance, and assistance at congested areas, such as forward arming and refueling points. Well thought-out employment of ATC assets will provide both aviators and the controllers the confidence and satisfaction that they are making the best possible contribution to the air-land battle.

The Army Aviation Center is aggressively pursuing the goal of properly equipping ATC soldiers. In concert with the Air Traffic Control Activity, the Aviation Center is upgrading current equipment, including outfitting the TSW-7A tactical tower and the TSC-61 flight operations center with new radios, and improving the reliability, availability and maintainability of the TPN-18 radar. In the near future, Army Aviation will use the microwave landing system (MLS) as its precision landing system. An MLS ground station will be installed at Cairns Army Airfield at the Aviation Center and the Troy, AL, Municipal Airport in the next 2 years for the training base. Tactical MLS ground stations will be provided at corps and EAC. Army Aviation also will use the global positioning system. This exciting new system will provide a passive navigation and landing capability worldwide and an unparalleled capability to land anywhere on the battlefield, without a ground emitter, to within 15M spherical error probable. A system now in the concept phase will automate all airspace management information to include airspace usage, control measures, mission planning and flight following. The combat support air traffic management system will provide a real-time, reliable air picture to ensure maximum use and airspace deconfliction among all users.

The future of air traffic services is filled with exciting opportunities, and the Aviation Center enthusiastically embraces this new mission. Proponency for this function at Ft. Rucker provides a most useful framework to ensure ATC units are properly equipped to support Army Aviation operations. I extend a hearty welcome to the fine soldiers of the ATC community.


LAM SON
719

MONTHLY WRITING AWARD

PART I: Prelude to Air Assault

Captain Jim E. Fulbrook, Ph.D., MSC

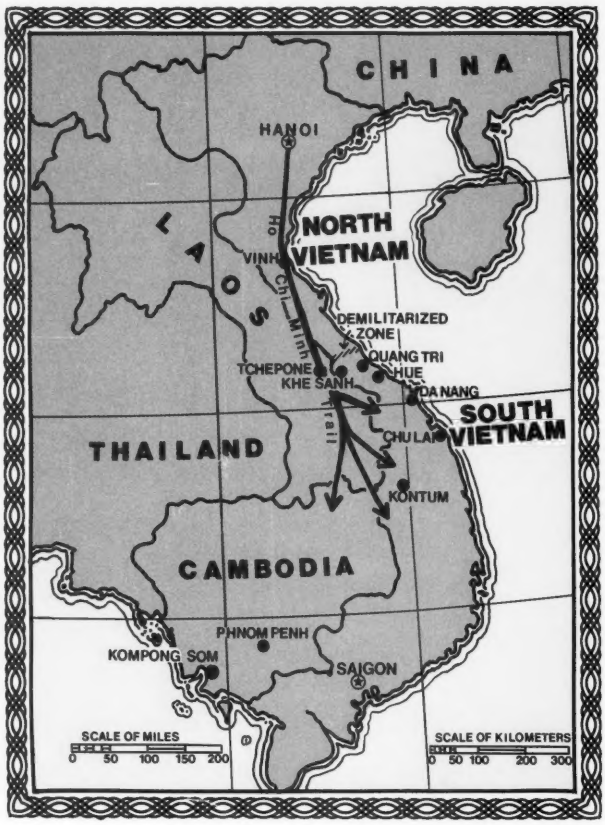
The author (center) at Dong Ha with crewchief "Mr. Tenn" Dannel and gunner Vandenbos (left).

IT IS INDEED important to understand what happened before, during and after the most significant airmobile battle fought in the Vietnam War—LAMSON 719. This 1971 battle is a milestone in the evolution of Army Aviation air assault tactics because:

- LAMSON 719 is the *only* historical example of contemporary Army Aviation operating in a mid-intensity conflict.
- During LAMSON 719 more helicopters received combat damage and were shot down than during any other comparable time in the Vietnam War.
- The combat assault on Tchepone in Laos involved more helicopters in a single lift than any previous combat air assault in Army Aviation history.
- Two of the blackest days in Army Aviation history occurred during the 45-day operation.
- LAMSON 719 is the best contemporary example of AH-1 Cobra gunships contesting enemy armor in combat.

Lessons learned from LAMSON 719 contribute to the current and developing evolution of Army Aviation tactical doctrine more than experience in any other operation has in the past 20 years. This article, next month's Part II: "The Battle," and August's Part III: "Reflections and Values," clearly show that Army Aviation has evolved into a most important member of the combat and, of course, the maneuver arms of the United States Army.

LAM SON 719



The 3-part series reveals that Army Aviation is a unique organization that packs great firepower and provides extensive mobility on the air-land battlefield. It depicts Army Aviation as a young and dynamic combat force building a precious heritage as it flies above, and among, the best!

Vietnam-era aviators confirm that most of the current air-land battle doctrine we read about is a historical summary and refinement of techniques employed and tested in the Republic of Vietnam. Army Aviation has *not* reinvented the wheel in the past 10 years. The experiences in our history offer more insights than you might think.

Part I of this article is a summary of the pertinent history of the Vietnam War through the end of 1970. It describes typical types of missions and combat operations conducted by Army Aviation.

Next month Part II will describe the LAMSON 719 operations order, the operation itself, the battle statistics, the afteraction reports and the lessons learned. Finally, Part III concludes with reflections and values of lessons learned not only from LAMSON 719, but also from Army Aviation's involvement in Vietnam from the beginning.

Based on invited lectures that I've given to aviation officer advanced course classes at the Aviation Center, Ft. Rucker, AL, and to others elsewhere, it is obvious to me that many people in Army Aviation today know little about Vietnam. We're already well into the next generation of people who were too young to have cogent memories of the Vietnam days. Also, there are only a few capsular references (see Part III in August) that I would recommend for obtaining additional background on Vietnam. For those reasons, I begin by giving more detail than may seem necessary to provide a contextual background around LAMSON 719. But, the successes, and more importantly, the failures of the operation are better understood in context with a complete LAMSON 719 background. This article describes aspects of the Vietnam War that are critical in understanding it but, too often, are deemphasized or overlooked in most references about the war. For those who already know something about the war in Vietnam, the article can widen the perspective gotten from other sources and references.

A Troubled History

Vietnam as a country does not have an impressive history of independence. It was briefly occupied by the Japanese during World War II, but for more than 50 years it was colonized by the French.

The French were defeated by the Communist Viet Minh at Dien Bien Phu in 1954. Because of sharply different political philosophies, Vietnam was divided by a Geneva Accord into a non-Communist state in the south, and a Communist-controlled state in the north. The Communists, or Viet Minh,

represented only a small percentage of the people, but they had the only force able to effectively fight the French. For about a year after the French defeat, the population was able to move freely across the partition line. More than one million anti-Communists streamed south while only a few thousand Vietnamese moved to the north.

The Geneva Accords were supposed to be temporary with a reunification to occur after elections scheduled for 1956; however, hostilities between the Communists, Nationalists and Buddhists prevented any election from ever occurring. The partition line soon became a closed demilitarized zone. After this, a Communist revolution (directed by North Vietnam) was started in South Vietnam by trained combat veterans of the Viet Minh army that had fought the French. These soldiers, and those enlisted from South Vietnam to fight with them, were known as the Viet Cong.

By 1959 the Viet Cong in South Vietnam were being directly assisted by units of the regular North Vietnamese Army. The U.S. Government, as part of the Southeast Asia Treaty Organization alliance, in conjunction with other countries including Australia and the Republic of Korea, sent an increased number of advisors under Military Assistance Command Vietnam (MACV) control to train and assist the South Vietnamese. MACV actually came into being in 1962 as a reorganization of an earlier military assistance and advisory group.

In 1960 there were fewer than 1,000 military advisors in Vietnam. President John F. Kennedy had been "burned" by the defeat at the Bay of Pigs in Cuba in 1961 and didn't want to see another country fall to Communism. He authorized and increased military presence which grew to 3,000 troops in 1961. President Kennedy was assassinated in November 1963, but the mandate was set and continued by President Lyndon B. Johnson and Secretary of Defense Robert McNamara, to increase the American presence as necessary to prevent a Communist takeover. In 1964, the U.S. Congress adopted the Gulf of Tonkin Resolution, authorizing the President to take whatever measures he considered necessary to repel attacks on American forces and to prevent further aggression in Vietnam.

By 1964, there were about 23,000 American troops in South Vietnam. In 1965, the emphasis on the war shifted. MACV became more combat operational and the first American combat division was sent to South Vietnam in the summer of 1965. The 1st Cavalry Division (Airmobile) deployed and engaged the enemy with the first extensive and sustained use of helicopters (principally the UH-1 Huey) in combat. Helicopters were employed earlier in Vietnam* and, in fact, were used during the Korean War on a lesser scale for movement of troops, resupply and aeromedical evacuation. The development of Army Aviation as we know it today began with the deployment of the 1st Cav. Clearly, the airmobile and air assault concepts of the 1st Cavalry Division in Vietnam demonstrated for the first time in combat the enormous flexibility and utility of helicopters on the battlefield. On countless occasions, from the battle at Ia Drang Valley in 1965 to the standdowns in 1972, Army Aviation proved to be of paramount importance in waging war in the defense of South Vietnam.

Through the 1960s, as the United States increased its involvement and support to South Vietnam, Russia increased its military support to North Vietnam, continually and several times at higher comparable monetary levels than the support provided by the United States. American strength reached its peak in 1968 at a level of about 550,000 troops. From 1969 on (through President Richard M. Nixon's administration) troop strength dramatically declined until in April 1972 there were fewer than 70,000 American troops in Vietnam. Operational control in MACV returned to a more advisory rather than direct combat role.

An Effort At "Vietnamization"

During the years of American presence in Vietnam, MACV was responsible for a program called "Vietnamization" (term coined in 1969). It sought to train the Vietnamese people about government, agriculture, industrialization, education and soldiering. The early plan included organizing an army and local reaction forces so that they would be able themselves to conduct the war against the Communists. To do so, an effort was made to train South Vietnamese soldiers in the maintenance and operation of military equipment to include weapons, artillery, tanks and helicopters. Many Vietnamese also were trained in the United States.

Unfortunately, most Vietnamese were not well educated, their technical understanding was primitive, and there was a serious language barrier, all of which made interactions, training and operations difficult and frustrating for many Americans. Progress was slow and when the U.S. Army and Marine Corps entered the war with direct combat missions, Vietnamization was further curtailed under the notion that the Communists would either back off or be quickly defeated by the large show of American force: Thus, a well-trained Vietnamese force would not be necessary. This was a fatal decision that resulted in several years being lost in developing greater auton-

* There were individual Army Aviation units in South Vietnam as early as 1961. The U.S. Army's 173d Airborne Brigade also deployed to South Vietnam in 1965. By the end of 1965 U.S. troop strength reached 181,000; in 1966, 385,000; and in 1967, 486,000.

INSET LEFT: To create LZs for helicopter assaults in the jungles and mountains, 5,000-pound bombs called "daisy cutters" were dropped, stripping the trees. However, the triple canopy jungle of hardwood trees was sometimes so dense that engineers would have to be rappelled into the LZ.

The A Shau Valley, renowned as the area of heaviest enemy concentration and logistics centers in the northern portion of South Vietnam.

LEFT: A typical fire support base called LZ West in Tam Ky Province, 1970.

RIGHT: A small outpost atop a hill north of Khe Sanh manned by ARVN.

omy for the people and experience for the Vietnamese Army.

In late 1967 and in 1968, the U.S. Embassy helped MACV rejuvenate the Vietnamization effort. In 1969, MACV was also bolstered in advisory troop strength severalfold to further accelerate the formalized Vietnamization program. Many more Vietnamese were then brought to the United States to learn how to fly helicopters, drive tanks and maintain equipment. Finally, it was obvious that the days of a U.S. presence in Vietnam were numbered. The Vietnamese were going to have to learn to fight the war on their own. LAMSON 719 became the first serious test of the Vietnamization of ground combat operations because American ground troops or advisors would not be allowed to set foot into Laos where the operation was to take place.

Throughout the war in Vietnam the Communists rarely showed concern for their number of combat losses. Human wave attacks were not uncommon and generally accounted for some of the few minor battlefield victories the Communists enjoyed up through 1972. However, it is not lofty or exaggerated to say that from 1961 to 1972, except for LAMSON 719 (which was more like a draw), the American and South Vietnamese decisively won every *major* battle of the war to include the most well-known battle, the Tet Offensive of 1968.

The Tet Offensive and LAMSON 719 stand out as two different types of battles that were very distinguishable from the way the war was otherwise conducted. The Tet Offensive involved more than 100,000 North Vietnamese Army and Viet Cong troops. It was launched on 30 and 31 January 1968, as an all-out surprise assault, primarily against well-defended military compounds in more than 115 different urban areas throughout the country. The battle was called the "Tet Offensive," named after the lunar New Year in Vietnam which is the Vietnamese peoples' most celebrated and important holiday.

UH-1 lands at a small pad at Mai Loc in 101st Airborne Division area of operation. A fire support base can be seen on the distant ridge (upper right corner).

Before the offensive, the Viet Cong had announced a 7-day truce over the holiday to further catch U.S. and South Vietnam troops off guard. The belief by the Communists at the time was that occupation of the major urban areas would generate a popular uprising among the people, mass defections from the South Vietnamese Army and the rapid collapse of the government. However, in just a few days, except for small sections in Saigon and Hue, the offensive was totally crushed. Communist losses ranged from 35,000 to 50,000 killed with 3,000 South Vietnamese killed, 1,500 Americans killed and more than 10,000 civilians killed in crossfires or murdered by occupying Communist forces.

After Tet, the Viet Cong were totally eliminated as an effective fighting force. Tet was a decisive victory for South Vietnam in several respects. It destroyed any credibility for the Communists with the South Vietnamese people and it greatly bolstered the South Vietnamese government and Army. But, the most far-reaching outcome of the Tet Offensive was a political one in the United States. As the battles unfolded, too many American journalists consistently distorted the events and highlighted the horrors of war. Everything the Communists did was embellished by those members of the media, while the South Vietnamese and American military were treated with derision and cynicism, as though they reported only fabrications.

The media's reflections of the war, coupled with the U.S. Government's failure to effectively communicate the purpose and objectives of the war, spread disillu-

Strong religious beliefs can be seen in the lives of most Vietnamese, such as Kim Anh Thu.

The Culture of Vietnam

Captain Jim E. Fulbrook

A lot should be said about the culture of the Vietnamese people if we are to fully understand the war and the significance of LAMSON 719. The Vietnamese are influenced mostly by Confucianism and ancestor worship. They are community and family oriented, not nationalistic. Most are superstitious, religious and decidedly nonviolent. They are anti-Communist because they fear a loss of freedom that would prohibit ancestor worship, religious freedom and community traditions like the "Council of Elders" which dominated the rural majority as the principal form of government. It's unfortunate that those fears have been borne out since the Communist takeover in 1975. These are the precise areas in which the Communists have placed their greatest efforts: reeducating and reunifying (nationalizing) the people. This cultural background makes it easy to understand why millions of Vietnamese since 1975 have risked their lives to leave their country by boat or whatever means possible.

The cultural and ethnic backgrounds of the Vietnamese people seriously impacted military operations in Vietnam. Even the indigenous armies were divided along ethnic lines to a significant degree.

The principal religions in Vietnam include Confucianism, Buddhism, Cao Dai (belief that all religions are "seeds of wisdom planted by God"), and "Cack" (Catholic or Christian). There are two main types of Buddhists: those subscribing to ancestor worship and those believing in reincarnation (sometimes called Mandarin Buddhists).

The Buddhists who believe in reincarnation make good combat soldiers because they believe that if they are killed their level of reincarnation would be high, based on how great their valor was on the battlefield. Buddhists, Confucianists and others who followed ancestor worship generally are poor soldiers. They are nonviolent in attitude, fearful of leaving their village areas where deceased ancestors would protect them and fearful to die if it were not in the family order.

These cultural differences are found throughout Vietnam, but there is a significant difference between the people north and those south of Da Nang where a major mountain range aids in dividing the country. Above Da Nang the average Vietnamese were about 2 inches taller than those in the south. The "northerners" appear more Chinese-like and Mandarin Buddhism is more prominent.

The cultural differences gave a significant advantage to the Communists. Both North and South Vietnam built their armies from volunteers and conscriptions, but the Communists in the north primarily conscripted Mandarin Buddhists (reincarnation believers)

sionment nationwide. That the Communists could launch such an offensive, even though it was decisively crushed, was a shock to the American public. Thus, the Tet Offensive of 1968 marked the beginning of disengagement by the United States from a war in which we were unbeatable on the battlefield, but which we could never win—at least probably not without a direct invasion of North Vietnam.

Levels of Conflict

It's important to define and describe the three levels of conflict found in combat:

• A **high-intensity conflict** is a war between two or more nations and their allies in which the combatants employ the most modern technology and resources of their military organizations to include nuclear, chemical and biological weapons. Decisive engagements between large numbers of troops oc-

for combat duty. The South Vietnamese conscripted without discriminating, but to a significant degree assigned troops to specific units based on cultural or religious backgrounds.

In the south, the Republic of Vietnam divided its Army into three general categories: Army of the Republic of Vietnam (ARVN) forces, regional forces and popular forces. Organized and trained along U.S. military lines, ARVN forces included marine, ranger, airborne, infantry, artillery and armor units generally capable of being deployed wherever necessary for combat. While ARVN units were frequently commanded by officers appointed from a non-Buddhist aristocracy, the bulk of the ARVN forces were composed of Mandarin Buddhist soldiers.

From 1968 to the defeat of South Vietnam in 1975, ARVN forces faired well in combat. Unfortunately the same could not be said too often for the popular and regional forces which made up the largest part of South Vietnam's combat troops. Popular and regional forces were territorial in the worst sense of the word. Many of these units were organized and trained more like paramilitary reaction forces, or police. These units rarely left their immediate villages and provincial regions, and they varied considerably in unit organization, leadership, level of training, equipment and resolve to conduct search and destroy operations around their local areas of operation. As you may have guessed, the majority of these units were dominated by the Confucianists and believers in ancestor worship.

American soldiers were critical of South Vietnamese soldiers, considering many of them to be corrupt, lazy, cowardly and without the resolve to fight the war. Many Americans believed that one Communist soldier was worth about three South Vietnamese soldiers. Unfortunately, this was true at times, especially in the early 1960s. But few Americans knew enough about the Vietnamese culture to understand the reasons why. To survive, the South Vietnamese would have had to make dramatic adaptations to their culture—hardening it against a relentless, countercultural aggressor and accomplishing this task in an inordinately short period of time. The South Vietnamese were not able to make the necessary adaptations before United States' support dwindled away in 1975, and the country was overcome by a conventional invasion of the North Vietnamese Army.

It's unfortunate that many Americans who served as soldiers in Vietnam knew little about the culture of the people and almost out of necessity seemed to dehumanize the Vietnamese to make killing the Viet Cong and North Vietnamese regulars easier. That's human nature and not unusual, but a lack of understanding hid any purpose for most soldiers to be there. I served in Vietnam from May 1970 to June 1971 and I came to see a purpose in my mission there: to protect the lifestyle and culture of the people.

A "Papa Sanh" selling meat to a store owner.

A store in Tin Phuoc, in the Tam Ky province.

cur with some frequency over a broad geographic or even global expanse. The direct combatants in a high-intensity conflict have generally committed the majority of their national resources and gross national product toward the war effort. World Wars I and II are examples of high-intensity conflicts.

• A **mid-intensity conflict** is a war between two or more nations and their allies in which the combatants employ their most modern military technology and military resources short of nuclear, chemical and biological weapons. These conflicts are for limited objectives under definitive policy limitations on the extent of destructive power that can be employed, or the extent of a geographic area that might be involved. Decisive engagements between large numbers of troops will occur at least occasionally at this level. Only a part of a nation's assets would be directed to the war and the period would not be as pro-

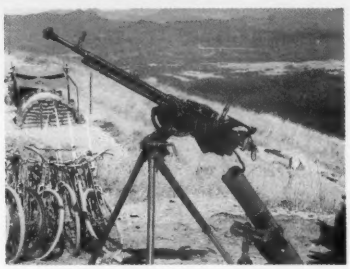
tracted as in a high-intensity conflict. Examples of mid-intensity conflict include the Korean War and the 1967 and 1973 Arab-Israeli Mideast Wars.

• A **low-intensity conflict** is a limited politico-military struggle to achieve political, social, economic or psychological objectives. It can be quite protracted and range from economic and political pressure all the way through terrorism and insurgency. Low-intensity conflicts are generally confined to a geographic area and constrained on the use of weaponry, tactics and levels of violence. Low-intensity conflicts include Beirut, Grenada, Nicaragua, Afghanistan and Vietnam during the United States involvement. Of course, the list is depressingly long with each conflict having its own unique features.

Although three levels of conflict have been conveniently defined, it should be realized that these conflict categories actually occur along a loosely defined continuum. Generally, most wars or conflicts do not remain at one level, but tend to escalate or deescalate over time. Each battle or period within a war can be defined in its level of intensity as well. Countless examples could be given of the escalations and deescalations of conflict in any war. However, where the Vietnam War is concerned, during the United States involvement, LAMSON 719 stands out as the only clear example of a mid-intensity conflict or battle.

LAMSON 719 lasted 45 days and large numbers of troops (more than 50,000 total) became decisively engaged. The significance of LAMSON 719 has been greatly overlooked in contemporary U.S. military history, and in Army Aviation in particular. From the introduction of the UH-1 and from the 1965 deployment of the 1st Cavalry Division (Airmobile) to Vietnam to the present, LAMSON 719 also is the best contemporary example of Army Aviation in a "deep attack" and as a combat and maneuver arm on a combined arms operation in combat. Both of these will be defined and discussed next month in Part II, "The Battle."

ABOVE: A small squad area along Route 9 in the valley just east of Khe Sanh. Photo was taken in the beginning of LAMSON 719.



RIGHT: Captured enemy 50 caliber (12.7 mm) machinegun.

Some people feel that the Tet Offensive of 1968 was a mid-intensity battle because it was a significant escalation of the war and a large number of troops were decisively engaged. Granted, from an infantry standpoint, the battles to retake Hue and the Cholon district in Saigon during Tet may be examples of a mid-intensity level but not where Army Aviation is concerned.

While Army Aviation was involved in Tet, it was not employed to the degree that it was in LAMSON 719. Most of the Tet battles were fought by South Vietnamese, U.S. Marine Corps and U.S. Army ground combat units. Remember, Tet took place in more than 115 urban areas and was fought more like a multitude of house-to-house skirmishes and small unit actions. Most of the enemy attacks were defeated within 2 days; only the Hue and Saigon battle areas were active for more than 1 week (about 26 days in Hue). Actually, the Tet Offensive is best suited as an example of a military operation on urbanized terrain conflict, but such an article will have to wait until another time.

Low-Intensity Conflict in Vietnam

The general and most common type of engagements in Vietnam were termed "small unit actions" which mainly involved company-size units or battalion-size operations. Throughout the war the Communists primarily operated in

small units within South Vietnam. This was especially true after the Tet Offensive of 1968 when the Viet Cong were greatly depleted. These units or cells were frequently composed of only six troops with perhaps only three of them carrying weapons. The primary missions of these cells involved harassment and temporary interdiction, usually without becoming decisively engaged. In fact, the Communists were so firm about this tactic in some regions that, as captured documents reveal, a ranking person could be shot if a superior officer encountered a unit in size greater than six that was not on a specific operation. Larger units would be formed as necessary for an operation, but after the operation the unit would disperse into small unit cells once again.

Aircraft shut down on fire support base in mountains.

Against the South Vietnamese, common tactics of the Communist forces included murder, kidnapping, confiscation of supplies, impressment and other acts of terrorism. The most frequent targets were the "elders" in a village because they represented the local governing body and, by culture, received the highest respect and fear for loss of their lives. It was not uncommon for the Communists to kidnap a ranking ancestor then impress the younger of the family members, sometimes even into suicide missions as "sappers" under the threat of the kidnapped ancestor being "cock-a-dowed" (phonetic pronunciation). "Cock-a-dow" is Vietnamese for being decapitated which, according to the Vietnamese culture, would separate that ancestor's soul to wander aimlessly in the afterlife without ascending in the family order.

Sapper operations involved either soldiers or impressed civilians sneaking through tunnels or under barbed wire at night to enter a military compound with satchel charges and grenades. Once inside, the sappers would plant or throw the charges to blow up as many people and as much equipment as possible before being killed or blowing themselves up. The main operations the Communists conducted against Americans included hit-and-run skirmishes or ambushes, sapper attacks and the setting of booby traps.

In the early phase of American involvement in Vietnam, too often when a village was occupied by the Communists or thought to be sympathetic to them, the U.S. troops would literally blast the enemy from a village or burn it to the ground. This usually caused more casualties and damage to the civilians than anything else. However, after the Tet Offensive, and the My Lai massacre in 1968, a greater effort was made toward the pacification of the people.

As another part of the Vietnamization program, civilians living in the most rural and mountainous areas were encouraged to resettle in designated pacification areas, usually in the most defendable geographic location in a regional province. From that location the people were guaranteed protection against the Communists, a place to live, land for farming, health care, education, etc. Everyone was still to retain ownership of their ancestral property in the unpacified areas and would be able to return when the war was over. Anyone choosing to remain in the unpacified areas was given no guarantee of security or other benefits.

To a significant degree, the pacification program run by MACV was successful. Even many of the Montagnards or "Mountainyards," as they were sometimes called, came to cooperate with the pacification program. Montagnards are a primitive, pigmy-like, aboriginal population of ethnic tribesmen who inhabited areas of the central and northern mountain ranges in South Vietnam. They were excellent, vicious fighters against the Communists who routinely impressed the Montagnard women, children and elderly tribesmen whenever they could capture them.

To provide greater security to the people, many of the pacification areas were made off limits to U.S. military combat personnel. In addi-

tion, these areas and all other established populated areas became designated as control fire zones (CFZs). All military, to include aviation and artillery personnel, were restricted from firing into a CFZ without MACV or provincial civilian approval. If a helicopter was flying in a CFZ and received enemy fire, the gunner had to have a positive identification of the enemy, without any endangerment to the civilian population, in order to return fire.

On helicopter combat assaults the local province chief or a MACV officer would be required to ride in the command and control aircraft to make the decision about whether or not the gunships and troop carrying helicopters could "go hot" if enemy fire were received. Hence, as U.S. involvement continued into 1970, military operations became more and more restricted. While CFZs were occasionally frustrating, they were probably the best way to conduct operations in populated areas. Of course, there were plenty of *free fire zones* that *had no restrictions* on return of fire.

Between 1965 and 1970 about 11 percent of all deaths and 18 percent of all wounds for U.S. combat troops were caused by booby traps and mines. For the Communists to avoid decisive engagements and just peck away at the U.S. troops became increasingly frustrating, and a serious no-win situation. Clearly, the only way to defeat the enemy would be to take the battle farther westward, away from the population centers and into the Communist strongholds in the mountains and plains along the Cambodian and Laotian borders. There, the enemy could also be found in greater numbers.

Fire Support Bases and Airmobility

Conventional military operations in Vietnam were simply not possible for several reasons. Aside from the Communist tactics of ambush and terrorism, and the absence of "front lines," the topography and climate profoundly influenced the timing and types of operations that could be conducted. The climate is primarily tropical and quite wet especially during the summer monsoon season when military activity on both sides was significantly reduced.

The southern part of South Vietnam is called the Mekong Delta, which is flat, swampy and covered with rice paddies. Delta areas were generally no-go terrain for military vehicles and tough going for soldiers on foot. "Riverine operations" by shallow-draft gunboats were common in the Delta. The capital city, Saigon, is located north of the Delta in an area known as the Piedmont, which consists of rolling hills and plains. Armor operations were most frequent in this area and along the coastal plain.

The coastal plain is a narrow strip of beaches, river valleys, marshlands and rice paddies along the length of South Vietnam. The coastal plain is the area of highest population and commerce, and was the location of most major U.S. bases and logistics centers.

The great majority of the remaining northern half of South Vietnam is composed of "triple canopy" jungle and mountains, some higher than 5,000 feet. Triple canopy jungle comprises three dense layers of foliage reaching as high as 15 feet, 75 feet and 150 feet from each layer of bushes and trees. The only effective type of operations that could be conducted in this terrain was airmobile assaults by helicopters with small units of infantry and artillery.

Operations to interdict into enemy-held strongholds which were usually in the mountains, employed the fire support base (FSB) concept. The typical combat operation involved the establishment of a self-contained, self-defended artillery base, usually on top of a hill or mountain, from which infantry "search and destroy" operations could be supported. The FSB concept reflected a universal truth in contemporary infantry combat: Never conduct operations beyond the range of artillery support. FSBs provided rapid, reliable, continuously available fire support, which was especially important when weather conditions precluded air support. By their locations, most FSBs provided additional advantages for communications relay, observation and control of high ground.

A typical fire support base would consist of a battery of 105 mm or 155 mm howitzers, an infantry company, four 81 mm mortars from an infantry battalion, and communications, administrative, medical and special operations personnel (K-9 teams, psychological operations teams, sniper teams with night scopes, etc.). FSBs were usually placed within range of the supporting fire of another FSB. Each FSB generally supported three or more infantry companies in conducting operations around the base.

The development of the fire support base concept was an innovation that went hand-in-hand with the increased flexibility and mobility made available by the use of the Vietnam workhorse—the helicopter. Many FSBs had no access for resupply and were wholly reliant on helicopters for support. There were generally few roads, and when there were roads they were usually not secure. Remember, this was a war without front lines against an enemy that favored ambushes and terrorism. Clearly, the helicopter made possible the FSB concept. Airmobility and air assault tactics in Vietnam enabled the U.S. Army for the first time to move large forces to specific locations rapidly and on short notice. FSBs allowed the Army to progressively strike deeper into enemy-held terrain without the loss of superior firepower.

Fire support base with a battalion of artillery on it.

Army Aviation Missions and Units

Much could be written about the missions and units of Army Aviation in Vietnam, but only a short review limited to rotary wing operations is necessary here. After 1965, the major types of Army helicopters employed in Vietnam included: The AH-1 Cobra gunship, the OH-6 Cayuse and OH-58 Kiowa scout and division artillery helicopters, and UH-1C, D and H series helicopters.

Unit sizes and types varied considerably among divisions and the four corps areas in South Vietnam. They consisted of platoons, detachments, teams, companies, batteries, squadrons, battalions and groups. At the height of U.S. involvement there were more than 5,000 Army aircraft in Vietnam and it is estimated that more than 13,000 Army aircraft cycled through Vietnam between 1961 and 1972. A few of the more typical types of aviation units and their missions were:

• **Aeromedical Evacuation (Dustoff) Units.** At the peak of U.S. troop strength in Vietnam there were 116 UH-1 helicopter ambulances in service. Between 1965 and 1969 alone some 373,000 military and civilian casualties were evacuated by Dustoff helicopters. While many casualties were conveniently evacuated by other aircraft in the vicinity, the lion's share was han-

dled by Dustoff units on a 24-hour basis in all weather conditions.

• **Cargo Helicopter Units.** An aviation battalion in support of a division consisted of two cargo helicopter companies of CH-47 Chinooks. Their missions included troop and cargo transport. Cargo helicopters played an integral role in the establishment and resupply of fire support bases primarily by delivering artillery pieces, ammunition, food and fuel.

• **Assault Helicopter Companies (AHCs).** Clearly, the workhorses of the Vietnam War were the UH-1 Hueys of assault helicopter companies. AHC missions included resupply ("ash and trash"), combat assaults, psychological operations, special forces and long range reconnaissance patrol insertions, electronic surveillance, etc. The typical AHC consisted of 24 to 27 UH-1s in three platoons—two lift platoons of UH-1H "slicks" aircraft and one gun platoon of UH-1Cs.

• **Air Cavalry (Cav) Units.** Combat divisions in Vietnam were usually supported by air cav squadrons. Each squadron consisted of three air cav troops and one ground cav troop. An air cav troop contained 27 helicopters, 9 to 10 AH-1G Cobras or UH-1C gunships, 10 to 11 OH-6 or OH-58 scouts and 7 UH-1s. The typical mission of a cav unit involved coordinating with a combat brigade for reconnaissance missions and bomb damage assessment in specified grid squares. In Laos during LAMSON 719, a recon team often consisted of one low AH-1 gunship and three high AH-1 gunships on search and destroy missions.

• **Aerial Rocket Artillery (ARA) Units.** These units were designated as batteries and had a total of 12 AH-1G "heavy hog" aircraft. Each had rocket pods capable of carrying up to 76 rockets. ARA units worked directly for a division artillery and received fire missions the same way as did ground artillery. The aircraft were usually used to provide close air support to ground units and to assist assault helicopter companies on combat assaults. During LAMSON 719 most ARA teams consisted of three aircraft with the additional mission of seeking targets of opportunity.

Low level flying in Vietnam was strictly prohibited and viewed as unsafe by most units up to the standdowns in 1972. Aircraft were supposed to fly at 1,500 feet above ground level in Vietnam and at 3,000 feet above ground level in Laos and Cambodia. Tight circling approaches and climbouts were typical for getting into and out of landing zones (LZs).

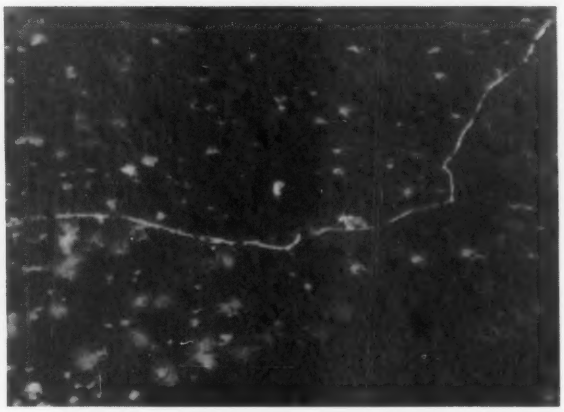
Combat assaults also conformed to the altitude restrictions and usually were conducted in tight formations of UH-1s, sometimes with as many as 10 aircraft in one lift. Most combat assaults, however, were divided into multilifts with about six aircraft per lift. Generally, the more aircraft involved, the more normal were approaches and departures of flights, although terrain and LZ factors largely determined the assault tactics.

Each combat assault had at least one team of UH-1C gunships that would make a racetrack pattern on one side of the flight around the LZ, at an altitude of 500 to 1,000 feet, to provide gun cover if needed. Occasionally, a smoke ship would be used to provide additional cover.

Combat assault tactics mentioned above were effective in Vietnam when a unit was usually only sporadically engaged, primarily with just small arms fire. However, during LAMSON 719, as we shall see, such tactics were disastrous. Before the end of LAMSON 719, most aviators routinely flew low level. Combat assaults were conducted by single ship landings with 30-second separations, and gunships made runs from higher altitudes. The LAMSON 719 battle probably did more than any other operation in the history of the Vietnam War to revert Army Aviation doctrine to the development of nap-of-the-earth flight tactics, and to move away from close formation combat assaults.

The Ho Chi Minh Trail

Through the 1960s resupply and reinforcement of Communist troops in South Vietnam were accomplished via two primary routes. The most efficient route to resupply the southern half of South Vietnam was by cargo ship to the port of



One of countless trails in Laotian panhandle known as the Ho Chi Minh Trail. Bomb craters are visible everywhere.

A typical combat assault. Insertion involved several aircraft in tight formation landing in a large LZ. Most LZs in mountainous areas required hovering instead of landing, and were sometimes booby-trapped.

Approach to a small ground unit on a typical "ash and trash" resupply sortie.

Sihanoukville (Kompong Som) in Cambodia. Prince Norodom Sihanouk, the Cambodian ruler, allowed the North Vietnamese to use the port, and to construct base areas and logistical facilities in Cambodia near the South Vietnam border. This was stopped in March 1970 when Prince Sihanouk was overthrown by an anti-Communist government that ordered North Vietnam out of the country and sought U.S. support.

In May and June 1970, U.S. and South Vietnamese forces launched a major offensive into the Communist sanctuaries in Cambodia. The offensive was a major success. Huge amounts of enemy supplies, equipment and bases were destroyed along with a serious loss of Communist troop strength. Coupled with the major loss of troops during the Tet Offensive, the North Vietnamese were severely reduced as a combat effective force in the southern IV Corps region of South Vietnam for years to come.

The second and most important route for the movement of supplies and reinforcements from North Vietnam to the south was the Ho Chi Minh Trail, named after the North Vietnamese leader. By 1970, it had been developed into an extensive, well-organized network of hundreds of miles of roads and trails running south in a wide corridor along the border between Laos and Vietnam into Cambodia. With the loss of the port at Sihanoukville, all supplies and reinforcements had to be moved down the Ho Chi Minh Trail. Not only was this a long, arduous trip, but for some time the trail network also was continually bombed by the Air Force, Navy and Marines. Despite these problems, the North Vietnamese had to dramatically increase activity on the Ho Chi Minh Trail to try to reconstitute their forces in the south.

The Americans and South Vietnamese had turned the war around and wanted to continue the offensive. So, in late 1970 an invasion of Laos, into the heart of the Ho Chi Minh Trail, was considered. An operations plan called LAMSON 719 was drawn up. The principal objectives of LAMSON 719 were to interdict and disrupt the flow of enemy troops and supplies along the Ho Chi Minh Trail in Laos that were coming into South Vietnam.

Operation LAMSON 719 would be the first major test of the Vietnamization effort. It would buy more time and safety for the continued withdrawal of U.S. troops by further damaging North Vietnam's ability to launch any offensives. And, it hopefully would cripple North Vietnam's strategy for combat operations and enhance peace negotiations, which were already underway.

Next month: LAMSON 719, Part II: "The Battle."

Part II

Against All Odds

Theoretical Aspects of Microburst Flight

By
LCDR Joseph F. Towers

ABOUT THE AUTHOR

LCDR Joseph F. Towers is a reserve Naval aviator flying as an instructor pilot in the DC-9 with VR-57 at NAS North Island, CA. Commander Towers is a San Diego-based First Officer on the B-767 with American Airlines and an independent safety consultant specializing in microburst-induced windshear, flight crew training, and mishap prevention. Commander Towers has studied and written extensively on the phenomenon of microburst-induced windshear for the last 5 years. His most recent effort was compilation of an in-depth paper on the flight-related aspects of the microburst phenomenon. He presented this paper at the 24th Aerospace Sciences Meeting sponsored by the American Institute of Aeronautics and Astronautics in Reno, Nevada, in January 1986.

Commander Towers' article on microbursts is being presented in three parts. In Part I in the May issue of *Aviation Digest*, he discusses weather conditions that spawn this most lethal of the downburst family and specific meteorological phenomena to look for. Commander Towers describes the crash of a massive L-1011 airliner in Texas to demonstrate what microburst-induced windshear can do to an aircraft, particularly during the vulnerable takeoff and approach stages of flight. He stresses the need for better understanding and awareness of microbursts by flight crews. Such knowledge is important not only for their own protection, but because of the importance of warning other aircraft of impending danger from this fast-forming weather phenomenon.

In Part II, Commander Towers presents a fundamental aerodynamic explanation of microbursts. In Part III, to be published in July, Commander Towers provides some techniques to control flightpath direction of an aircraft caught in extreme microburst conditions.

Are microbursts and microburst-induced windshear a danger to Army aircraft, or are they a problem only for larger aircraft that operate in a wider variety of weather conditions? While the consequences are more likely to be catastrophic for large aircraft and more lives are at stake, any aircraft can fall victim to a microburst.

In April of this year, an Army U-21 was approaching Atlanta International Airport. The tower reported windshear, but the aircraft was already on short final and committed to touchdown. It encountered severe windshear, causing it to touch down with the left wing low, allowing the propeller blades of the left engine to hit the ground. Fortunately, in this mishap the only damage was to the propeller blades.

The more you know about microbursts, the safer you will be. You need to know the conditions in which they are most likely to occur, what happens to an aircraft when it encounters a microburst, and what to do to survive. And there's something else, your report of a microburst might be the difference in whether someone else survives—or doesn't.

Aspects of microburst flight

NOW that you're familiar with the basic nature of microbursts and have some specific meteorological phenomena to look for, let's look at how a microburst can affect an aircraft during flight.

A microburst encounter is extremely dangerous during the **vulnerable takeoff and approach** because of the aircraft's limited aerodynamic capability and its proximity to the ground.

To fully understand the aerodynamic effects of an encounter, we would need complex equations of

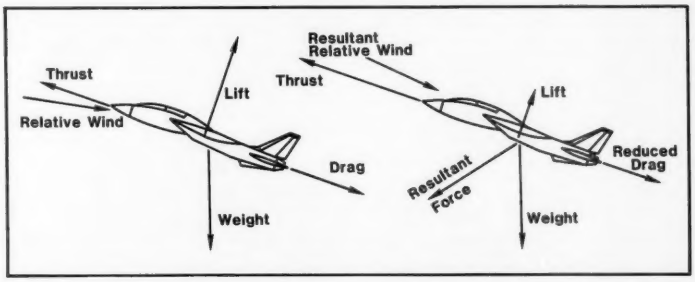


Figure 4 depicts the four forces of acceleration acting on an aircraft in flight. During microburst penetration, these forces can become unfavorably unbalanced due to a transitory reduction in lift produced by an angular shift in the relative wind and a reduction in airstream velocity. The result is an adversely altered flight profile as the aircraft seeks an equilibrium condition.

Glossary

fpm	**feet per minute**
KIAS	**knots indicated airspeed**
km	**kilometer**
JAWS	**Joint Airport Weather Studies**
VSI	**vertical speed indicator**
HUDS	**Heads-Up-Display**
AOA	**angle-of-attack**

motion and acceleration. However, fundamental vector analysis will illustrate how an aircraft's flight path can change due to an altering of the lift force.

A reconstruction of the Pan American Flight 759 disaster shows that the Boeing 727 penetrated a weak-to-moderate, microburst-induced windshear that generated a 14-knot headwind during the takeoff roll, a downdraft and crosswind shortly after liftoff, and then a 25-knot tailwind.

The aircraft was airborne for only 20 seconds and attained a maximum altitude of about 150 feet. During this time, takeoff thrust and weight were constant with negligible changes in drag. Lift was the only force of acceleration that could have adversely altered the flight path.

Lift equals the coefficient of lift (C_L) times the dynamic pressure (q which equals $\frac{1}{2}p\ V^2$) times the surface area of the wing (S) and is written as: $L = C_L\ (\frac{1}{2}p\ V^2)S$.

The density ratio (p) and surface areas of the wing (S) were constant and can be eliminated, leaving us with $L = C_L \times V^2$, or to put it another way, LIFT = (Angle-of-Attack) x (Indicated Airspeed)^2.

Therefore, the remaining variables having a deteriorating effect on the flight path are the coefficient of lift, which is a function of airfoil configuration and **angle-of-attack**, and dynamic pressure, which is a function of the **square of the airstream velocity. A reduction in one or both of these pilot-controlled variables can severely impair lift generation.**

Thus the New Orleans disaster was no doubt the result of the aircraft

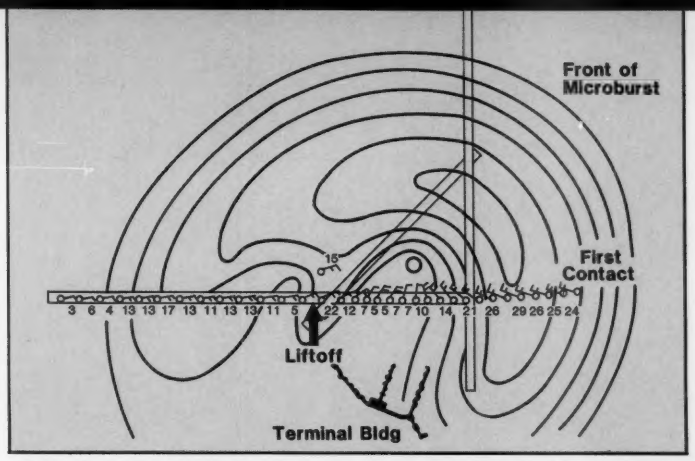


Figure 5 is based on Dr. T. Fujita's reconstruction of the microburst winds that existed along the route of flight of Pan American Flight 759 at Moisant International Airport in New Orleans in July 1982. Note the dramatic change in wind speed and direction.

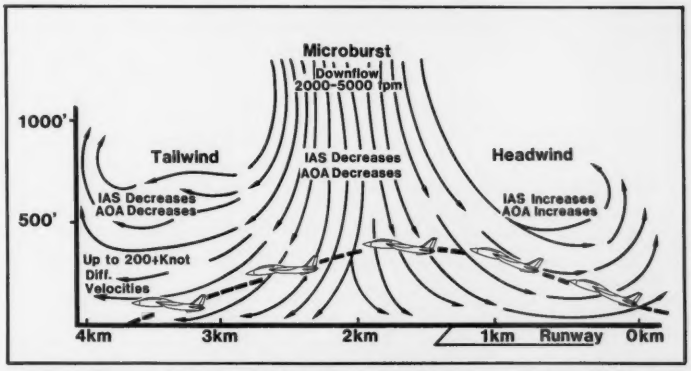


Figure 6 illustrates how the flight path can change during microburst flight along with the aircraft's anticipated changes in pitching moment. This assumes a constant thrust setting, an initially-trimmed condition and no control inputs. Initial headwind penetration will typically result in increases in indicated airspeed and an increasing or erratic angle-of-attack. The result is an upward-pitching moment and an INCREASING PERFORMANCE PROFILE. As the aircraft then penetrates the downflow and tailwind areas, critical losses of indicated airspeed and angle-of-attack will occur. These combined reductions will impair the aircraft's ability to generate lift. This condition results in a downward-pitching moment and a DECREASING PERFORMANCE PROFILE. If the aircraft is not developing sufficient lift to support its weight, the resultant vector (of lift, weight, thrust and drag) will create a temporarily unbalanced force gravitationally accelerating the craft in the downward vertical plane as an equilibrium condition is sought. During this transition, the flight profile is adversely altered. If such an oscillation is not interrupted by the flight crew or the negative vertical displacement exceeds altitude available, ground impact will occur.

A second-order effect may also occur whereby the flight path is further altered because the aircraft is now flying with increased downward momentum in a descending air mass. The aircraft climb rate capability would then have to exceed the rate of the downflow in order for a net climb rate to result, relative to the terrain.

A further complication arises whereby the rate of change in the microburst's continuous, variable gust velocities occurs at a rate greater than the aircraft's ability to attain a stabilized condition. The aircraft's resultant oscillatory motion aggravates an already critical situation. Furthermore, the normal relationship between indicated airspeed and angle-of-attack may be altered to an unknown and variable degree. (Adapted from illustration by FASOTRAGRUPAC Media Services.)

temporarily not developing sufficient lift to support its weight because of reductions in angle-of-attack and indicated airspeed. The resultant vector (of lift, weight, thrust and drag) temporarily generated an unbalanced force. Gravity dominated and accelerated the craft downward as an equilibrium condition was sought. During this low-altitude transition, the flight crew was unable to change the flight path direction to prevent ground impact.

Roll and yaw rates may develop because of the wide variation in airflow direction and velocity over various sections of the airfoil. In a NASA B-57 test aircraft penetration of a developing microburst, variations in airstream velocity were recorded in excess of 10 knots between one wing tip and the other, along with moderate to severe turbulence.

Heavy rain is another factor to consider during flight. It can reduce visibility and may distract us from concentrating on flight-path control. The magnitude of heavy rain effects on lift generation, drag rise and angle-of-attack sensor alignment in unknown and is currently being investigated.

Flight safety is further jeopardized by possible erroneous readings of pressure-sensitive instruments. Such erroneous readings may be attributed to variations in static pressure within the microburst. Specifically, during penetration of a low-pressure region from an area of higher pressure, **altimeter readings could indicate an altitude higher than the true altitude, and a barometric vertical-speed indicator may show an erroneous rate of climb.**

Indicated airspeed may also be altered to an unknown degree. Airspeed indicators are basic pressure gauges. This gauge pressure is the difference between total pressure at the pitot head and static pressure at the static ports, which is then calibrated in knots. As the aircraft traverses regions of varying static pressure, indicated airspeed may also register a higher or lower value,

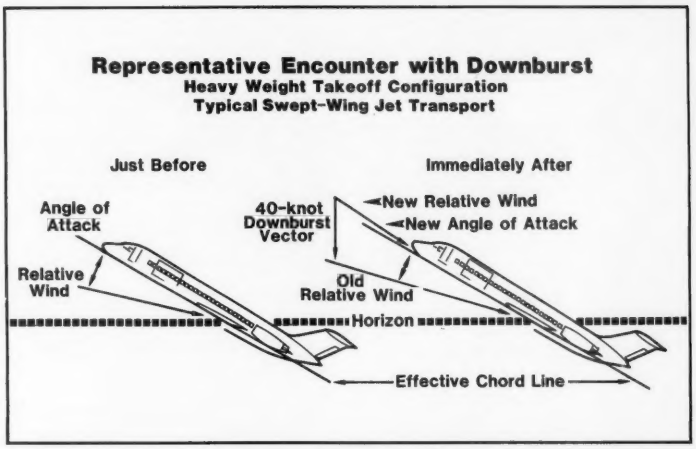


Figure 7 illustrates the reduction in angle-of-attack that can occur during the highly dynamic conditions of a microburst. This angular reduction in the relative wind may occur continuously with or without a significant change in indicated airspeed. The net effect is that overall lift generation can be significantly reduced. (Illustration taken from the *Mac Flyer,* as adapted from *Douglas Aircraft* and based on a U.S. Navy *Approach* concept.) This illustration is fundamental in nature. Digital flight recorder data taken from Delta Flight 191 (Dallas/Ft. Worth, August 1985) revealed a very erratic angle-of-attack, one that would have been extremely difficult, if not impossible, for a flight crew to use. This may be attributed to the extremely turbulent winds within the microburst.

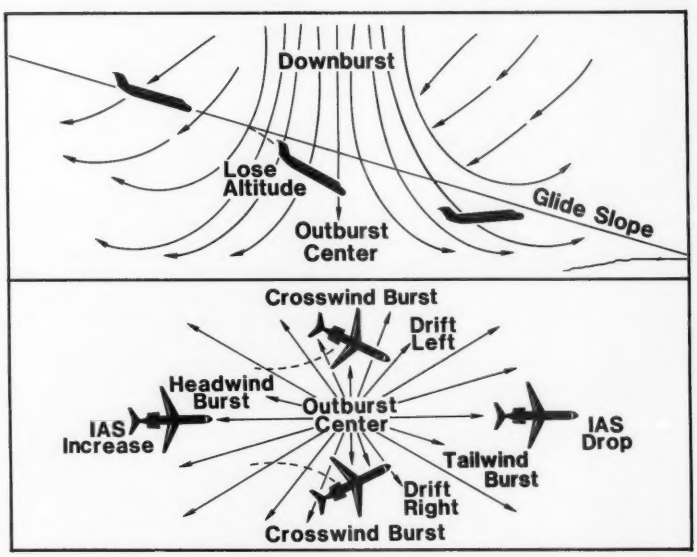


Figure 8 shows the effects of downburst and outburst upon an aircraft during a final approach. Of these, the most dangerous effects are the downburst, crosswind burst, and tailwind burst encountered near the ground. Outburst is defined as being the strong outflow created when a downburst hits the ground and spreads out. (Courtesy of Dr. Fujita; illustration modified by U.S. Navy *Approach*)

when given the same total pressure at the pitot head.

Pressure profiles within the microburst

The pressure profiles within the microburst are very unusual. Dr. Fujita attributes this strange pressure change to the conversion of total pressure into velocity pressure according to Bernoulli's Theorem.

So, according to Dr. Fujita, what we have is a pressure field characterized by high pressure at the microburst center which is encircled by a ring of low pressure. The low-pressure ring is surrounded by a high-pressure ring located just inside the outer boundary of a microburst. Outside this area the pressure drops to the environmental level.

If an aircraft were to encounter a pressure differential (when compared to normal environmental pressure for the corresponding altitude) **along its flight path, the rate of climb or descent registered on the vertical-speed indicator would depend on the rate of change in pressure along the flight path, regardless of the true inertial direction of the aircraft.**

Pressure-sensitive flight instruments would indicate what they sense based on dynamic and static pressure. **The problem is that this may not necessarily be representative of the true motion of the aircraft in inertial space as it traverses sharp pressure gradients.**

During microburst conditions, a potentially deadly situation exists in which an aircraft may be robbed of indicated airspeed to where it's now below the approach or departure speed. **As pilots, we've been obsessed more with loss of airspeed than flight path control. That's a dangerous preoccupation.** Furthermore, we've had little or no awareness of the effects that a dramatic change in angle-of-attack can have. In light of this, it is possible that the loss of several aircraft may have been caused by attempts, either consciously or unconsciously, through pitch attitude reduction, to attain a specific approach or takeoff airspeed.

(Part III, the conclusion of Commander Towers' article, will appear in the July issue.)

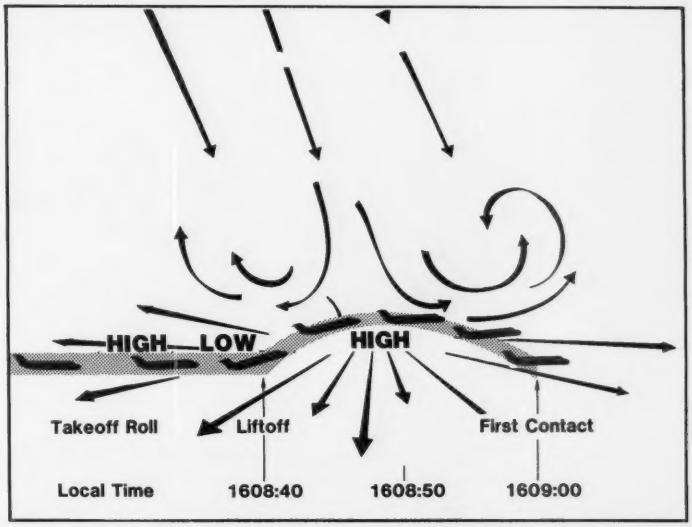


Figure 9 is a three-dimensional illustration of a microburst, courtesy of *Douglas Aircraft Company*. An overlay of high and low pressure regions has been added along with the approximate flight path of Pan American Flight 759. Could the absence of voice communication during the last 15 seconds of flight be attributed to an erroneous indication of climb on the aircraft's vertical speed indicator, thereby giving the impression of impending recovery?

Figure 10 depicts an aircraft in extremis due to a microburst encounter. Such a situation demands immediate and aggressive flight crew responses to redirect the aircraft's flight path to avoid impact. (Painting courtesy of Blake Radar, U.S. Navy *Approach*, September 1982.)

PEARL'S

Personal Equipment And Rescue/survival Lowdown

photo by Benjamin Martel

PEARL'S, Dawna Salazar, holds a survival food packet, which is included in the Army aircraft survival kits. The packet contains about 870 calories and consists of three dried, compressed cereal bars, a chocolate fudge bar, soup and gravy base, instant coffee and sugar. The instructions state: "Eating slowly will give more satisfaction."

Staying Alive

If you were forced down in the wilderness, or enemy territory, could you survive? Sure you can, but you may end up doing things you never thought you could. The Air Force Survival School instructors at Fairchild AFB, located several miles outside of Spokane in eastern Washington, are staffed by a nucleus of officers and 230 enlisted instructors. These instructors often come from Montana, Wyoming and other places where life is rugged. Many of them were skilled in hunting, fishing and trapping before they enlisted, and the Air Force rounds them out as full-fledged survival, escape and evasion experts. This survival school is tailored to aircrew personnel regardless of the type aircraft they fly. We in the Army can get quotas to this good school. Should you be fortunate enough to go, you will have to work hard but the experience you will receive will certainly be beneficial should you ever be in a serious survival situation. Properly trained aircrew personnel should be able to survive just about anywhere.

The Arctic is very, very difficult to survive in. And yet, it's something against which you can fairly well protect yourself. A barren desert probably presents the most grim survival challenge. You can get yourself warm in the Arctic, but it's very difficult to get yourself cool in the desert; and, you need water. The average person can last for 30 days, roughly, without food. But, you do need water!

While techniques differ according to climate and terrain, the goals are the same.

Survival is survival; it means staying alive, staying in as good a condition as you possibly can, in order to fly and fight again. That's basically the bottom line of why you need to learn and live survival.

The Air Force course typically begins on a Wednesday morning with orientation followed by lectures on the will to survive, the ability to survive and survival medicine.

The following days bring more lectures—desert survival, arctic survival, survival in the tropics and in the water. Then come hands-on lessons in operating radios, flares and signal mirrors. Next, the students test their skills in Colville National Forest, which provides a remote and rugged setting.

Finally, it's graduation day. Late in the afternoon, the students file into an auditorium at Fairchild. Lieutenant Colonel Driscoll, a former Vietnam prisoner of war, strides onto the stage. For half an hour, he tells the story of his captivity. It's a tale Driscoll has told many times, and each time the students are spellbound. Here's a man who has had to deal with torture, beatings, atrocious food and humiliation for 7 years. Their 17 days of training suddenly seem awfully mild.

We in the Army ask, "Why doesn't the Army have such a course for our aircrew personnel?" We do have such a course, but it's shorter; our survival course runs only 6 days. It is sponsored by the Sixth Army for Army Reserve Component aircrew personnel and it is conducted by the Oregon Army National Guard at Camp Rilea, which is about 84 miles west of Portland, OR. The point of contact is Major Pat Kelley, AUTOVON 586-4133; PEARL believes another course will be conducted in early spring. You should work through your unit training officer to secure a

quota. There also are other survival courses being conducted throughout the Army for water survival, arctic survival, cold weather survival and desert survival. We don't want to duplicate any of the Air Force survival courses because of the costs and manpower involved.

XM-43 Aviator's Protective Mask

The XM-43 aviator's protective mask consists of a form fitting faceblank with lenses mounted close to the eyes; an integrally attached chemical/biological (CB) hood and skull-type suspension system; an inhalation air distribution assembly for regulating the flow of air to the oral nasal cavity, lenses and hood assembly; a pressure compensated exhalation valve assembly for maintaining an overpressure in the mask/hood assembly at all times; an electronic microphone for communicating while in the aircraft; and a portable motor/blower filter assembly for supplying filtered air to the face piece/hood assembly. The new mask provides the required CB protection and allows for compatibility with the Integrated Helmet Display Sight System and the optical relay tube of the AH-64 Apache aircraft. The mask will be worn by attack helicopter aviators and will provide the aviators the required respiratory/skin protection from CB agents, toxins and radioactive fallout particles. Point of contact for additional information is Mr. Joe Graczak, AMCPM-ALSE, AUTOVON 693-3210.

New Happenings at Ft. Eustis

The ALSE supervisors' course is now available at Ft. Eustis, VA, and is open to officers and warrant officers. It carries an additional skill identifier of 1F for warrant officers. This course also will soon be expanded to senior noncommissioned officers.

Anti-G-Suit Protection

Anti-G-Suit protection is a must if you are undergoing test pilot training or if you are assigned to Edwards Air Force Base, or other high performance aircraft test facilities as a test pilot. A "blackout" from loss of G protection can occur in an average of 15 seconds. Use the G suit when you need it; it is available from the Air Force and the Navy.

Downed Pilot Rescued

Pilots Tom Doyle and Jeff Lewis, accompanied by Roy Bailey and Doug Boody, were recently on a routine test flight in an S-76B corporate helicopter. Bailey, an electrician, noticed something unusual in the swamps below. "When I first saw it I thought it was a survey cross," Boody, a crewchief, said. Pilot Doyle suggested they go back and check it out. Upon closer inspection by the crewchief, they saw someone standing on the belly of an overturned single engine Piper Tomahawk plane, waving furiously. Doyle couldn't land and didn't have a hoist because of the helicopter configuration. They hovered overhead, but were afraid the plane's wing would rise into the rotor blades. Doyle motioned for the pilot to get in the water and away from the downed aircraft. Crewmembers Bailey and Boody then pulled the pilot into the S-76B cabin. Student pilot Sassano was on a solo cross-country flight, he said, when his engine quit and he was forced to land. The plane flipped on contact. There is a message in this article, carry an emergency locator transmitter or at least a survival radio. Luckily, these pilots were in the right place at the right time and were able to effect a safe rescue.

AN/PVS-5 Night Vision Goggles Update

Although this is not considered an ALSE item per se, we are providing this information because it is used by aviators. The major problem at present is with the defective face mask assemblies that are cracking with use. CECOM representatives are continuing to provide operator and organization maintenance training on night vision devices, AN/PVS-5, AN/PVS-4, and AN/TVS-5. Point of contact is AMXEU-L-CECOM, Mr. White, AUTOVON 421-6685.

ALSE Inspection, Maintenance and Repairs

With the firm support we are getting from the ALSE training facility at Ft. Eustis, the Aviation Center at Ft. Rucker, AL, the Reserve forces, including the Army National Guard and the overseas elements, and the Aviation Life Support Equipment Management Steering Council, we are strongly moving forward in our quest for what is needed to make Army ALSE second to none. Air Force, Navy and Army manuals/technical orders and NAVAIRs are published pertaining to almost every item of ALSE available. Currently, the Army does not have sufficient people to adequately maintain this equipment to the desired standards. The establishment of some sort of ALSE facility named by qualified personnel is an absolute necessity. Key to a successful ALSE program could be centralization/consolidation wherever practical. Equipment to be inspected must be accessible and readily available for inspection, maintenance and repair.

If you have a question about personal equipment or rescue/survival gear, write PEARL, AMC Project Officer, ATTN: AMCPO-ALSE, 4300 Goodfellow Blvd., St. Louis, MO 63120-1798 or call AUTOVON 693-1218/9 or Commercial 314-263-1218/9.

ABOVE THE BEST -

During his more than 4,200 hours of flying for the Army, maintenance test pilot James M. "Mike" Hudson has put his aviation skills on the line many times. But, it was his extraordinary performance in November 1984 that earned him an Army aviator's prized badge of honor, the Broken Wing Aviation Safety Award.

Hudson, a Department of the Army civilian assigned to the 120th Army Reserve Command (ARCOM), Ft. Jackson, SC, is credited with safely landing his T-42A Cochise airplane after one of the two engines suddenly exploded and caught fire.

"Mike did an extraordinary job to save the crew and aircraft from any further damage," says Bob Medley, aviation safety manager for Second U.S. Army at Ft. Gillem, GA. "The good thing about Army flight training is that it teaches you to react in an emergency," he said.

Hudson was on a routine maintenance test flight awaiting clearance for approach to Columbia Metropolitan Airport when the explosion occurred, emitting an 8 to 10 foot ball of fire. Two cylinders were blown out of the engine, one shattering the propeller. The fire quickly spread to the wing and was intensified when a piston broke through the cowling and severed the primer fuel line.

"My primary concern was to get the fire out, or get down before the wing burned off," Hudson said. His first reaction was to shut the fuel off, which helped bring the fire under control.

James M. "Mike" Hudson

Despite the violent pitching of the aircraft and minimal visibility from the smoke and spewing oil, Hudson was able to regain control of the airplane and maintain the maximum allowable power to keep the airspeed up. Meanwhile, crash and rescue teams were standing by at Columbia Metropolitan Airport.

Once emergency flight procedures were complete, Hudson landed the aircraft, shutting down all of the plane's electrical systems and stopping without brakes to prevent any sparks from setting off another fire, which could have destroyed the aircraft.

"A test pilot has to take the attitude that anything and everything can happen and react as best he can," Hudson said. "I tend to want to play devil's advocate with everything, even in my personal life. I guess it's a matter of my makeup."

Also aboard the aircraft was copilot Major Van Jones. According to Hudson, the two had flown together before through other emergency situations, so they were used to working as a team.

The Broken Wing is given in recognition of extraordinary skill and judgment in recovering an aircraft as a result of mechanical failure or other emergency.

As a combat helicopter pilot in Vietnam in 1968, Hudson was shot down three times while he was serving with the First Cavalry Division (Airmobile). He is currently a reservist with the 120th ARCOM.

Ms. Mary Kay Sones, Public Information Office, Headquarters, Second US Army, Fort Gillem, GA

AVIATION PERSONNEL NOTES

Branch Letter

To All Company Grade Aviators:

I thought I would write a note to you in the field and let you know that the Military Personnel Center (MILPERCEN) is alive and well. For those of you who call us with your requests and questions, you know how busy the phone lines are. Since my arrival here in June 1985, I have noticed a common trend in the requests and inquiries from nearly all the company grade officers. I hope to answer some of those questions and provide you some useful information in this letter.

The Role Of The Assignment Officer: In a recent letter an old friend told me that he felt that the officer in the field didn't believe that the assignment officer was concerned with his individual needs. That is far from the truth; but remember, just as you make difficult decisions and unpopular demands on your soldiers, so too must we in the course of our job. You are charged with meeting a pickup zone time, keeping your aircraft in a mission ready status, and a host of other requirements that your reports are written on. Remember that we are human just like you are. We have to meet the Army's requirements above all other considerations. However, the first item considered when we make an assignment is the officer's preference statement. Having a current one in your file is the best action you can take to influence your next assignment.

The Advanced Course: All officers must attend an advanced course in residence, and there are only three exceptions to the rule: resignations, constructive credit or approval by the commander, MILPERCEN for *exceptional* reasons. You must attend by your eighth year of active federal commissioned service.

Combined Arms Service Staff School: Those officers in year group 79 and later must complete Phase I and attend Phase II in residence prior to their ninth year of active federal commissioned service. There are *no exceptions!*

Tour Extensions: Branch is approving these on a very limited basis, and only after the local command has initiated the request. Overseas requests and extensions for command may be exceptions, but will be handled on a case by case basis.

Records: Your selection for schooling, promotion and all other personnel actions is based on your file at MILPERCEN. Your Officer Record Brief (ORB) tells us what you have done. It is your military resume and keeping it current is your responsibility. A very important item in your file is your photo. Weight and mustaches are very sensitive issues and carry more negative impact than positive. Keep your photo current to make sure that it represents you well. It is the only human element in your file, and introduces you to every reviewer.

Success: Do your job well, get good reports and you will advance. If the ORB tells us what jobs you have held, then your reports will reflect how well you've done. We consider a report with good comments from the rater and a senior rater block check at or above center of mass to be a respectable officer evaluation report. There are some jobs that you should all strive to hold. These are: platoon leader, executive officer, primary staff at the battalion or higher level, operations officer, and command. You should hold at least three of those jobs before you come into the zone for major.

Good reports from tough demanding jobs keep you competitive for promotion. Promotion is not a reward for past performance, but recognition of potential for future advancement. It is up to you to display that potential.

One of the most critical and toughest Army Aviation jobs is the maintenance officer's. Should you volunteer or be selected to track in this field, consider yourself in a very select group. Aviators in this area of concentration are as competitive for 04 and 05 promotion as any track.

There are also some very select nominative positions to which some of you may be assigned. Other than command, the two most difficult positions to nominate an officer to are Reserve Officers' Training Corps and Recruiting Command. You are not being cast off into the boiling sea if you are selected for one of these positions. Those of you who did not get the opportunity to command in aviation may want to volunteer for a recruiting command.

Assignments: You will not be considered for reassignment until 6 months prior to your normal rotation date. If you are on orders to the advanced course your assignment will be projected 60 days prior to your report date. As I mentioned earlier, keep your preference statement updated. Phone calls just slow the process.

Aviation Branch Hotline: We now provide information on available assignments, professional development and other items of interest on our Aviation Branch hotline. A recording containing up-to-date information can be obtained by dialing: Commercial (202) 325-7150, or AV 221-7150. You will hear a recording asking for a 7 digit number. At the tone dial:

278-2861 (CPT-AVN1): Captain Assignments

578-2861 (LTS-AVN1): Lieutenant Assignments

At the completion of the message, you can leave a message if you desire.

I wish you all good flying and the best of luck in your jobs. If you haven't asked for a copy of your ORB in a while, send your requests to the following address.

USAMILPERCEN
200 Stovall Street
ATTN: DAPC-MSR-S
Alexandria, VA 22332-0400

If you have any further questions feel free to write or contact your assignment officer.

Sincerely,

Captain Jimmy M. Rabon
Aviation Branch, CAD

What Must I do to Get Promoted?

The latest sergeant first class promotion list has been published, and now the questions start. Staff sergeants are asking, "Why wasn't I promoted?" Commanders and supervisors are wondering, "Why wasn't Sergeant Smith promoted? He's the best staff sergeant we have."

These questions have been asked before and will be asked again. Let's look at the results of the fiscal year (FY) 1986 Sergeant First Class Selection Board.

Of the total 8,106 noncommissioned officers (NCOs) selected for promotion, 7,659 were selected from the primary zone. Of the total selected from the primary zone, 2,532 were considered in the primary zone for the first time, while 5,127 had previous consideration—some as many as 7 times.

Two important factors impacting on selection are needs of the Army and the quality of soldiers being considered as reflected by their file.

First, the needs of the Army may change from year to year. Remember, you now compete only against those in your military occupational specialty (MOS). The number of projected vacancies at the next higher grade determines the number that are to be selected. This is called the select objective, and there is one for each MOS. With Force Modernization and changes to the force structure, the number needed in each MOS may vary from year to year.

Second, the quality of NCOs competing for selection has improved. Therefore, is your file complete? Check it yourself before the board convenes. See if all your awards and decorations are listed and that all of your enlisted evaluation reports (EERs), academic reports and course completion certificates for resident and nonresident courses that are eligible to be in your official military personnel file (OMPF) are present. Make sure someone else's documents are not filed in your OMPF.

You should know better than anyone else what you are authorized or have accomplished. Do you have any old Articles 15 in your OMPF maintained at the Enlisted Records and Evaluation Center? If you do, get them out of your file. AR 27-10 gives procedures for transferring old Articles 15 that occurred at a junior enlisted grade, and have served their purpose, from the performance portion of your OMPF to the restricted portion. The restricted portion does not go before a selection board.

Check your photograph: You should be standing at attention, your uniform must fit properly and be the *right uniform.* Many female NCOs have pictures that show them wearing the skirt with oxfords instead of black pumps. Other pictures show NCOs with hair too long, mustaches too long or no brass. Make sure your photograph is correct, and that it depicts the way you want the board to look at you.

Are you physically fit? If you are overweight, lose it! If you can't pass the Army physical report test, work out, get in shape and pass it!

Study your military skills and do the best you can on your skill qualification test (SQT). Raise your general technical area aptitude score if it is below 100. Continue your civilian education, and ensure it is properly reflected on your personnel qualification roster and OMPF.

Duty performance is the most significant factor considered by the board members. Seek out the toughest leadership jobs. Be a squad leader, platoon sergeant or, if you are a master sergeant, a first ser-

geant. If your current duty position has you supervising several people, *make sure the duty description and narrative portion of your EER reflect that leadership information.*

In summary, there is no single item that guarantees your promotion. You must be strong in all areas. Do well in all your jobs. Seek the tough leadership jobs for that extra plus. Stay physically fit. Take your SQT, if available, and score high. Keep your official records current. The opportunities for promotion are there, but so is the competition!

New Dimensions of Adventure (CW3 Robert H. Gratbowski, Warrant Officer Division, MILPERCEN)

The AH-64 Apache program, for those with a desire to seek high adventure, is an exciting opportunity to equal the accomplishments of those who knew the challenging times of early aviation. Perhaps there are no more leather jacketed aces; pioneers of an unexplored sky. There are, today, aviators of unusual skill, competence and training, dedicated to the task of pioneering a new age in the sky where lasers, computer controlled components and deadly weapons systems are the norm. That is quite a leap into a new dimension of operation. Most, perhaps as recently as 10 years ago, would have considered the AH-64 as belonging to the realm of science fiction. Today, the Army is training in and fielding this aircraft.

There is room in the AH-64 program for very special aviators—aviators unafraid of a radically new approach to mission performance—aviators capable of mastering complex systems in potentially hazardous environments. Aviators who, with the same foresight and daring of their compatriots of leather jacket days, are willing to open new vistas of aviation.

The program is not easily entered. An applicant must be qualified as an attack helicopter pilot and have a minimum of 2 years attack helicopter experience. Further, the applicant should be in a Conditional Voluntary Indefinite or Regular Army career status (waiverable in exceptional cases). If those basic qualifications are met, the applicant may submit a request, on DA Form 4187, for integration into the AH-64 program. The request must be favorably indorsed through channels to the appropriate career manager at MILPERCEN. Once the 4187 is received at MILPERCEN, the applicant's official military personnel file will be reviewed. After passing this thorough screening process, the applicant's name will be placed on the waiting list for the program.

It is also important to remember that there is a 3-year Active Duty service obligation associated with the course and, once trained, the officer must anticipate repetitive tours in AH-64 attack battalions. Although not necessary for selection, an officer evaluation report stating an officer's potential for maximum service to the Army as an AH-64 rated aviator cannot hurt the overall chances of that officer's acceptance into the program.

Adventure is definitely not dead. It is alive and thriving in the world of Army Aviation. If you would walk this path, this new call to glory, then give close consideration to the AH-64 program. The aircraft of the future is waiting for you to climb aboard.

For further information on the program, commissioned officers should contact Captain Bob Carter at AUTOVON 221-0433/7822, and warrant officers should contact CW4 Euel Henry at AUTOVON 221-7835/7836.

1986 Engineering Test Pilot Board Results

The 1986 Army Aviation Engineering Test Pilot Selection Board met in February to select aviators to attend the U.S. Naval Test Pilot School (USNTPS), Patuxent River, MD. The selectees are:

CPT Eric S. Dean
CPT Robert A. Doyle
CPT Jack L. Kimberly
CW3(P) Mark E. Metzger
CPT Nancy J. Sherlock
CPT David F. Swafford
CPT Henry H. Waller III

The selection of Army aviators for participation in the program is made by an annual Officer Personnel Management Directorate (OPMD) board. Those selected attend the Army Test Pilot Orientation Course at Edwards Air Force Base, CA, to receive an academic and flight refresher. At the USNTPS, they will undergo a comprehensive 11-month course specifically designed to produce a proficient engineering test pilot.

The next OPMD Engineering Test Pilot Board is planned for February 1987. DA Circular 351-84-3, "Army Aviation Engineering Test Pilot Program" (currently under revision) contains the prerequisites and application procedures. The deadline for applying for the 1987 selection is 31 December 1986. For further information, write or call MAJ Hinds, MILPERCEN, ATTN: DAPC-OPA-CV, 200 Stovall Street, Alexandria, VA 22332-0400; AUTOVON 221-8156/7.

GOAL–
$2,500,000

JUNE 1986–
$2,035,000
cash and pledges

Army Aviation MUSEUM

This is a series about the Army Aviation Museum Foundation fund drive. Currently, plans call for building a modern complex to house your Army Aviation Museum. Since last month additional donations have been received. However, we still have a ways to go, as the barometer above shows. If you would like to help "build" the Army Aviation Museum's new home, you are invited to send a tax deductible contribution to: The Army Aviation Museum Foundation, Box 610, Ft. Rucker, AL 36362-5000. If you desire additional information call Mr. Ed Brown at (205) 598-2508.

Aero Commander U-4A

A Look At What's In Your Museum

The U-4A, originally designated L-26B, was 1 of 15 purchased by the U.S. Air Force and used for staff transportation. The Army bought one. It is equivalent to the U.S. Army U-9B model and was turned over to the Minnesota National Guard for duty. The U.S. Army Aviation Museum acquired the standard Aero Commander 560A from the Minnesota National Guard in 1965.

Recording Flight Time

Sergeant First Class R. A. Buck
Directorate of Evaluation and Standardization
U.S. Army Aviation Center
Fort Rucker, AL

WITH THE INTRODUCTION of the mainstay of Army Aviation, the helicopter, our system of recording flight time became more complicated. Today we have aircraft equipped with extremely sophisticated electronic systems designed to enhance safety and expand the mission capability of our aircrews and aircraft.

Our current system of keeping flight records is not designed to track all the information necessary to monitor an aviator's skills. Today we track flight time for an aviator using the DA Form 759 and 759-1. The problem arises from the fact that we only track his time in very broad terms. By looking at an aviator's DA Form 759 we can tell how many hours he has and break those down by pilot, copilot and instructor pilot. We also know whether this time is fixed wing or rotary wing, single engine or multiengine. If we want any more specific information we have to go back through his DA 759-1 forms and extract his time by type aircraft and flight condition. This can turn into a complicated and time-consuming process.

For the enlisted crewmembers, this system is even more ambiguous. We have no direct guidance on how to maintain their records. We track their total flight time, but do not record any special qualifications or experience. With an aircrew training program being developed for the enlisted crewmembers we will have to maintain additional and more specific information on these individuals, creating a need for a new and more accurate system of maintaining flight time and flight records.

With regard to aviator crewmembers, a new system is being developed that not only tracks the aviator's time by duty symbol and flight condition, but also by type aircraft. The revised DA Form 759 incorporates a chronological listing of the aviator's qualifications and flight hours, broken down by duty symbol in each aircraft system. A separate DA Form 759-1 will be maintained for each separate aircraft the aviator is required to operate. This form tracks the individual's total flight time in a specific aircraft by duty and flight condition symbol. It is therefore possible for an aviator to have more than one DA 759-1 form for each close-out period.

For enlisted crewmember/noncrewmember personnel, a more specialized system for flight records maintenance is being developed. Flight records designed for crewmembers/noncrew-

members will use a DA Form 759 and DA Form 759-3. The DA Form 759-3 is a new form designed to track flight time and maintain flight pay computations for all individuals who must fly for pay. It is a combination of the old DA Form 759-1 and a flight pay computation work sheet. When the individual is due a closeout, a consolidated DA Form 759-3 will be completed and maintained in his records. This will provide a continuous record of his flight time and flight pay qualification.

The revised flight records system for enlisted personnel is also designed for those individuals—scout aerial observer, aerial observer and flight engineer—who must accomplish assigned task and flying hour requirements as outlined in aircrew training manuals. For these individuals, you will still use the DA Form 759-3 as a work sheet, but will not use it as a consolidation sheet. Instead, their closeout will be done the same as is an aviator's using the DA Form 759-1. This becomes necessary so we can track their time by duty and flight condition symbol, as required by the ATM.

With increased emphasis on computers in the Army, a new system of maintaining flight records and flight pay is being designed for automated and nonautomated use. This system gives us the capability to track all aviators' qualifications and experience throughout their careers. We have also incorporated a system of tracking flight time for pay and computing time on flight status for award of senior and master crewmember badges.

Much time and effort has been devoted to development of a revised Army flight records system that is usable at the unit level. Two Active Army units are currently maintaining their flight records under the new system to evaluate and test procedures and design of the revised DA Form 759 records. When these units have completed the test, the information will be collected and their comments and suggestions reviewed; the forms and procedures will then be revised in order to develop the most user friendly system possible.

New technology, mission requirements and funding create constant changes in Army Aviation. Development of a records maintenance system that can react to change is long overdue. Hopefully, this new procedure will cure that problem.

The new procedures and forms will appear in chapters 7 and 8 of Field Manual 1-300.

DES welcomes your inquires and requests to focus attention on an area of major importance. Write to us at: Commander, U.S. Army Aviation Center, ATTN: ATZQ-ES, Ft. Rucker, AL 36362-5000; or call us at AUTOVON 558-3504, FTS 533-3504 or Commercial 205-255-3504. After duty hours call Ft. Rucker Hotline, AUTOVON 558-6487 or 205-255-6487 and leave a message.

U.S. Army Class A Aviation Flight Mishaps

	Number	Flying Hours (estimated)	Rate	Fatalities	Total Cost (in millions)
FY 85 (to April 30)	30	847,493	3.54	27	$64.5
FY 86 (to April 30)	20	874,435	2.29	19	$45.1

The "Girl Back Home" and Army Aviation's H-19

Mr. James Mowry

THE PRIME MISSION of the H-19C Chickasaw (later redesignated UH-19C) was troop movement and resupply during the Korean War—and the "Hog," with tail marking 114272, served her country well in that capacity. However, her tour was not over with the signing of the truce, and she didn't hit the surplus list until 1968.

In the meantime she flew many more missions, such as routine, medical evacuations, training and VIP flights. Old 114272 flew many VIPs—General Maxwell Taylor, Secretary of the Army Stevens, Congressman from Michigan Gerald R. Ford Jr., actresses Mary Murphy and Terry Moore, comedian Rosco Odte and the singing Bell Sisters, to mention just a few. Probably the most publicized and most memorable would be the 4-day USO mission flying the late Marilyn Monroe.

There is an old saying in the military, "Keep your eyes and ears open and never volunteer." But, flight time had been scarce for a while around the 13th Helicopter Company, so it was that I volunteered for a highly special mission that cold February day in 1954. Of course, when the nature of the mission was disclosed everyone volunteered, but too late—a well-balanced crew had already been assigned. Four H-19Cs, including 114272, met Miss Monroe and her entourage at Seoul City Airport (K-16) on 16 February.

The word had got out, and lines of military police restrained an eager crowd when Miss Monroe's group was transferred from the C-54 Air Force transport to the H-19s. Miss Monroe, the USO tour director, an Air Force nurse and Mrs. Frank "Lefty" O'Doul (wife of the famous baseball player who in the old Pacific Coast League was manager of the San Francisco Seals) were assigned to the lead aircraft. The support band "Too Far East" and the press boarded the other three H-19s. Miss Monroe waved from the cargo door as we waited for takeoff and told the troops she had become "bored" with baseball in Japan and decided to visit her friends in Korea. (Her husband, Joe DiMaggio, the "Yankee Clipper," and Lefty O'Doul, were in Japan assisting Japanese baseball teams.)

Suddenly, the military police lines broke and the "hungry-for-a-closer-look" GIs swarmed our helicopter. As the troops pressed closer and the helicopter started to rock under the force, a quick decision was made to remove Miss Monroe from the cargo compartment and put her in the copilot's seat, high above and out of the reach of the outstretched hands. The copilot (LT John Dunn) climbed outside and lifted the seat to allow Miss Monroe to climb the short ladder to his compartment. The arrangement worked and as John assisted Miss Monroe in getting into the shoulder harness and seatbelt, the crowd moved back. (I'll never forget the expression on my copilot's face as he carefully positioned the shoulder straps and locked them into the seatbelt.) Miss Monroe was dressed in olive green winter fatigues with the two top buttons unfastened on the tight fitting blouse. As he secured the seat buckle, the third button "popped" loose and I heard a short spoken "oops" as John nearly fell from the side of our Hog! It was a tense moment to be sure.

With the crowd moved back, the H-19s were fired up and we started the first leg of our mission. Since the tour was unplanned and time was short, Miss Monroe had chosen to visit the troops along the old main line of resistance and our first stop would be at 1st Marine Division headquarters. It was a

short flight but my first with a female copilot. I enjoyed every minute—I smiled the whole way! As we landed she said, "These birds are wonderful!" I agreed.

The weather was bitter cold but our reception was warm at each division. As we approached the 7th Division command post, we could see yellow smoke billowing from several grenades, to help guide us to the landing zone, and we also saw a group of officers awaiting her arrival. Major General Lionel C. McGarr and his staff had been waiting more than an hour in near-zero temperatures to welcome Miss Monroe to the Bayonet Division. After a short picture-taking session they whisked her away in an open jeep.

The evening show was before a crowd of about 4,000 GIs; many had waited all day in the bitter cold to ensure having a good seat. Some had brought their winter sleeping bags and looked pretty warm, all zipped in with only nose and eyes peering out. In contrast Miss Monroe came on stage in a low-cut, tight-fitting blue sequin cocktail dress. She had to be cold and "goose bumps" were visible on her bare arms. Later someone asked, "Were you cold?" She said, "I didn't feel anything but good!"

The show was fairly short. She sang, "There is Nothing Like a Dame," "Diamonds Are a Girl's Best Friend" and Gershwin's "Do It Again." More often than not, the applause and "cat calls" lasted longer than the song. At the conclusion of the show General McGarr made Miss Monroe an honorary member of the Bayonet Division saying she was a great morale booster, then adding, "You are the greatest hit the Yankee Clipper ever got," referring to the couple's recent wedding.

After the evening shows, Miss Monroe would visit the officers club and the enlisted club, making small talk and answering questions of all kinds. The troops loved her. At the 7th Division it was 2 o'clock in the morning before she retired, but long before our 0700 hours takeoff she was up and touring the regimental areas in an effort to see more of her fans who were on duty and thus missed the show the night before.

Except for the first leg of our tour, Miss Monroe rode below—to the delight of the crewchief, CPL Armstrong—(from New York City). He got to know her pretty well, even made the seats on one side of the helicopter into a bed so that she could "cat nap" in flight, between shows. Before the tour was over he told Miss Monroe, "They'll never believe this back home." Her response was that they would have to believe pictures and several were taken of the two of them together. She was a good sport.

The crowds were the same at the 3d, 40th and 25th Divisions; they ranged from 6,000 to 10,000 or more. At the 40th Grenadier Division, Colonel John G. Kelly, commander of the 160th Infantry Regiment, felt a tank was the safest mode of transportation to the outdoor theater. It was an odd sight to see such beauty above the open hatch of a heavy tank as it moved down the road.

The sun was bright when we landed in front of the bunkers area at the 2d Division command post. But, a light skiff of snow swirled above our blades. It had been subzero the night before and by noon it had only warmed to about 7 degrees above.

Major General William Barriger had greeted Miss Monroe and assigned two very large military policemen (MPs) to escort her while in his area. We were all prepared to eat a steak lunch at the general's mess, when Miss Monroe asked to be excused. The two MPs showed her to an improvised ladies room. About 20 minutes later Miss Monroe hadn't returned and two more MPs were sent to search. They returned shortly to advise the general that, "Miss Monroe was having lunch with the troops." They explained, "She just picked up a steel mess gear and fell in line behind the other troops." (They were having beef stew.) As she left the mess tent she called to the MP, "CPL Knapp, where are you, I can't keep track of you!" The slightly embarrassed escort responded, "That goes both ways ma'm." I don't believe General Barriger was too happy, but I'm sure the troops enjoyed it.

Her show at the 45th Thunderbird Division was marred by an unexpected demonstration when about 6,000 troops broke through MP guarded rope barriers and surged forward like a human tidal wave; one trooper was injured and the show was cut short. Miss Monroe was dashed off by Brigadier General John C. Oakes, acting division commander. It was the only incident that marred an otherwise perfect tour.

On 19 February 1954, after 4 busy days, old 114272 dropped its beautiful cargo near Chunchon (K-47) for her flight back to Japan. It was estimated that in excess of 25,000 GIs viewed Miss Monroe's performances during those 4 days, and that after the tour her fan mail jumped from 50 to more than 5,000 letters weekly.

Miss Monroe stated later, "When I first started, I had several little parts at Fox Studio, then the letters started pouring in from Korea and I got some wonderful roles."

Korea may have made Marilyn Monroe a star, but to the troops who shared part of those 4 days, 32 years ago, Miss Monroe made their stays in Korea a bit more enjoyable. She was like a breath of springtime, kind and soft—like the girl back home.

It may have been my imagination but Army Aviation's H-19, number 114272, seemed to smell better too!

DUSTOFF REUNION

The author describes the gratifying feeling he had during and after last year's Dustoff reunion. It was the first time he had attended. Have you been missing your units' reunions? Try to attend the next one and experience warm and proud feelings as you help build your unit's, and your country's, proud heritage.

Colonel Douglas E. Moore
Deputy Director, Health Care Operations
Office of the Surgeon General
Washington, DC

I WENT TO a reunion several months ago. Not a high school or college reunion, but a reunion of the men who piloted medical evacuation (MEDEVAC) helicopters in Vietnam and the medics and crewchiefs who flew with them.

The Dustoff Association, named after the call sign of the MEDEVAC helicopters in Vietnam, began holding annual reunions in San Antonio, TX, several years ago, but I hadn't gone to any of the earlier gatherings. I can't explain why I didn't because I've always been proud I flew MEDEVAC helicopters, and I'd like to think some of the more than 11,000 casualties I've evacuated over the years have gone on living because I was there.

I've always used the excuse I was too busy to go, but I'm not certain that was the real reason. It's not because I harbor any negative thoughts about the war either. I believed both then and now that *what we set out to do was the correct thing* and my only regret is that we pulled out too soon and abandoned many good Vietnamese to the fate they suffer today.

For some reason, I decided to attend the last reunion. A few days after deciding, I received an unexpected phone call from a guy I'd flown several tough missions with in 1964 and early 1965. Walt Harris got out after that tour, and I hadn't heard from him in almost 20 years. You can imagine my surprise when he phoned here at the Pentagon and informed me that he's now an Episcopal priest serving as a chaplain in the Air Force. He dropped another bomb when he told me that he, too, was planning to attend the reunion for the first time.

You could've knocked me over with a feather. Walt Harris—a preacher? Not Walt Harris! He was one of the craziest pilots who ever climbed into a helicopter as well as one of the bravest. Walt was one of the first Army guys to get involved with the agent orange spray missions in Vietnam. In fact, Walt attended the first meeting with a newly arrived group of Air Force guys who called themselves the "Ranch Hands": They flew old, raggedy looking C-123s.

Because the Air Force had no crash-rescue capability in Vietnam in 1964, the Ranch Hands asked if we'd fly cover for them while they carried out some of the most dangerous missions of that long war. We agreed to help and decided the code name should be "Harris Missions" because Walt attended the initial planning meeting.

Many were the afternoons when the phone would ring and the Ranch Hands would tell us they needed

In Vietnam, American Dustoff crews reflected the same pride and valor as their predecessors in Korea who, with their H-13s, were tabbed "Angels of Mercy."

support for a Harris Mission at dawn the next day. We'd meet at some airborne rendezvous point and then follow them to the spray area where we had ringside seats as they made low level passes over areas like the Iron Triangle, War Zones "C" and "D," the mangrove swamps of the Delta, the Ho Bo Woods and the Bo Loi Forest.

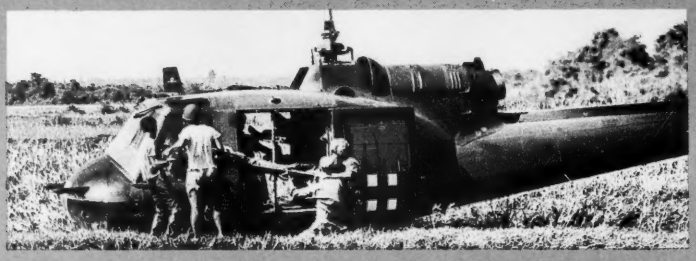
In a single pass over the Bo Loi early one day, an old C-123 named "Patches" took what was reported to be nearly a hundred hits and began spewing every fluid aboard the aircraft. Paul Bloomquist and I pulled the power up to the red-line on our old "B" model UH-1 Huey and stayed on the C-123's tail until Patches cleared the fence at Ben Hoa Airbase and we heard over the radio, "Thanks, Dustoff. We got it made now."

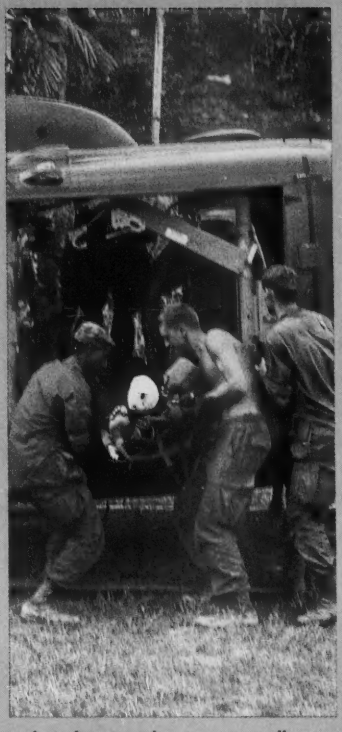
Unfortunately, Paul Bloomquist never attended any of our Dustoff reunions. He was named "Army Aviator of the Year" in 1965 and survived almost 3 years in Vietnam only to get killed by a gutless group of terrorists called the Bader-Meinhof Gang in an explosion at V Corps Headquarters in Frankfurt, Germany, on the eleventh of May, 1972.

For weeks before this year's reunion, I wrestled with the memories and with "how in the heck" could Walt Harris have become a minister. I have to admit, there were some anxious moments when I walked into the hotel and ran into Walt. To my surprise, he's still the same crazy guy he always was, but I sensed an inner strength, a confidence and a direction to his life that I found both admirable and enviable.

Walt and I laughed a lot as we recalled the times several of us had too much Chinese food and Vietnamese beer in Cholon and then engaged in hair raising pedicab races into Saigon. We chuckled about the day, following months of careful preparations, the Air Force tried to burn a Viet Cong sanctuary in the Bo Loi Forest only to have the heat cause a towering cumulus buildup, which eventually turned into a thunderstorm that doused the fire.

We reminisced about the night when, scared to death, we let down through 4,000 feet of broken





Our Nation pays homage to Dustoff crewmembers, recognizing them as truly All-American heroes who overcame all obstacles to rescue and comfort the wounded.

clouds trying to get into Thu Da Mot to evacuate several Americans and Vietnamese hurt during a sapper attack. We finally broke out at 200 feet and bounced off the top of a tall jungle tree growing on a small hill overlooking the compound where the wounded were located. Fortunately, we landed with no damage other than some scratches on the bottom of the helicopter and a limb or two hanging off the skids. At the reunion, Walt reflected, "God was on our side that night."

Know what? I believe him!

After loading the wounded, we sped to the U.S. Navy's old hospital in downtown Saigon. As we flew over the city that night, we found the streets filled with massive demonstrations. It seemed that one of the many coups we experienced in those early years was underway.

Walt and I spent a lot of time together over the weekend. When I took him out to Lackland Air Force Base to catch a hop back to Tyndall, it was tough letting go. Neither of us wanted to say goodbye. I think there's a special kinship that develops among aviators and others who've been on the ragged edge together, and I don't believe it's duplicated in other relationships. Tears came to my eyes when I turned and walked away from Walt—Chaplain Harris, I should say.

It was good seeing the other guys too. I did a lot of thinking as I renewed friendships with the folks from the early days and those I met during a later tour in 1968 and 1969. Some of us are visibly older now. There was quite a bit of grey hair and a lot less hair in some cases. There were more lines around everyone's eyes and some are guilty of an extra pound or so, but 20 years really hasn't made all that much difference.

As we relived war stories and talked about what's happened in the intervening years, a sudden realization came over me. Represented in that group were some of the finest pilots who ever strapped on a helicopter and perhaps some of the best our country will ever produce. Our generation of aviators flew regularly for many years and we accumulated a lot of

flying time under all kinds of conditions. The MEDEVAC pilots and gunship pilots with names like "Playboys," "Vikings" and "Razorbacks" along with lift pilots like the "Little Bears" and others became expert flyers and the helicopter seemed to be a natural extension of their bodies. Most of them could do anything with a helicopter, regardless of the enemy, weather, terrain or other circumstances. It dawned on me that these flying skills probably won't ever be equalled again, unless we go to war.

I came to another realization as I met with these old friends from the past. In that group were some of the most courageous Americans who ever put on an Army uniform. I was struck with that thought as I stood on the balcony of the hotel's hospitality suite with Chief Warrant Officer (CW4) Mike Novosel.

Mike Novosel is nothing short of an American legend himself. He flew bombers in the Army Air Forces in World War II, was back in the U.S. Air Force for Korea, and then asked to come into the Army as a warrant officer to fly helicopters in Vietnam. By then, he'd been on flying status for 41 years, but was facing the end of his career, having been extended a short time to serve with his son, Mike Jr., a Master Army Aviator who'd recently been promoted to CW4. Can you imagine that; a father and son team serving at the same time as CW4s and Master Army Aviators? That's incredible!

Mike's not more than 5 feet 8 inches or so, I suppose, with the sort of face you wouldn't pick out in a crowd. I've known him for a long time, but as I stood there on the balcony with Mike that afternoon, I suddenly realized the enormous respect I have for this great man who's dedicated most of his adult life to serving his country. Besides his long history of flying, there's something else remarkable about this kind and humble man. He's one of the few living Americans who wears our Nation's highest award for valor, the Medal of Honor, earned as a MEDEVAC pilot in Vietnam in 1969. I don't have all that many heroes, but Mike Novosel stands tall with those I do have. I felt honored just to be in his presence again for that short weekend.

There were others at the reunion who were equally as courageous. The number of awards for valor held by that group of brave men would have taxed a calculator if someone had tried to add them up. As I spoke with Mike and the others, I realized that they, the gunship and lift pilots, had *set standards for courage that may never be attained again.* I earnestly hope the new generations of pilots will remember the Vietnam-era pilots for their heroism and for their forging the way for Army Aviation. I'd bet all of us older guys share a common hope though—that the young guys never have to try to match our standards of courage.

On Sunday morning, we had the most beautiful memorial service I've experienced. It was fitting that the chaplain also had conducted services for one of our Dustoff crews at Soc Trang in 1969. The chaplain's message was simple, yet magnificent, and his delivery was flawless. His wife sang two beautiful hymns and I don't believe there was a dry eye in the house.

I couldn't take it. I cried too as I listened to the chaplain's words and let my mind wander back across the years. I remembered Major Charles Kelley, Captain Bob Cottman, Lieutenant Doug McNeil, Warrant Officer Timmy Cole, Specialist Fifth Class Wayne Simmons and the other pilots, crewchiefs and medics who died serving their country while trying to help their fellow man. These people set standards for courage, sacrifice and selflessness that ought to be remembered forever.

We should never forget the brave heroes who died for the United States. We, as a Nation, can't afford to forget them. They gave their lives representing America in that hope that men can live free and without oppression. We, as the Army, can't forget them either. They showed us what courage is all about and they died exhibiting the same kind of spirit and determination that American soldiers have demonstrated throughout our Nation's brief history. We, as Army aviators, *must* remember them. Like a brilliant beacon in the night, their memories ought to shine forever as symbols of what makes America great. These were young men, in the primes of their lives, representing every ethnic and socioeconomic group. They give special meaning to that beautiful verse, John 15:13, "Greater love hath no man than this, that a man lay down his life for his friend."

Well, I've told you about my reunion. I'm glad I finally attended one and I don't intend to miss any in the future. In fact, I just received notice of the 1986 reunion and I'm already making plans to attend. Sure would be nice if we had an Armywide aviator reunion, because I still owe a beer and a word of thanks to some "Bandit," "Razorback," "Firebird" and other gunship drivers who saved my butt. Maybe, someday.

Going to the Dustoff reunion reinforced my pride in the work I did in Vietnam. It made me proud to be an Army aviator and prouder still to be an American. I walk a little taller as a result.

MILES

When installing the Multiple Integrated Laser Engagement System (MILES) on the AH-1S and UH-1H series helicopters, *CAUTION* should be exercised.

Standard aircraft screws are made of a soft material that strips easily under stress and can lead to possible separation of detector belts and cabling from the aircraft during flight. The MILES screws are made of a hardened material that meets airworthiness specifications and must be used.

The following technical manuals require replacement/use of MILES screws in place of aircraft standard screws when MILES devices are installed on AH-1S and UH-1H aircraft:

TM 9-1270-223-10 "Operator's Manual for Multiple Integrated Laser Engagement System (MILES) Simulator System, Firing, Laser: M80 AH-1S Attack Helicopter Weapon System, NSN 1270-01-165-6240"

TM 9-1270-224-10 "Operator's Manual for Multiple Integrated Laser Engagement System (MILES) Simulator System, Firing, Laser: M79, NSN 1270-01-159-0481 for the UH-1H Utility Helicopter"

All installation hardware will be issued with the MILES KITS when drawn from the Training and Audio-Visual Support Center MILES warehouse. If the MILES installation hardware is missing, DO NOT use those MILES KITS.

SFC Kenneth N. Westover
Project NCO
U.S. Army Training Support Center
Ft. Eustis, VA 23604-5166
AV: 927-4713/4714
Commercial: (804) 878-4713

DIDJUNO?

Mr. Forrest H. Helfenberger
U.S. Aeronautical Services Office
Cameron Station, Alexandria, VA

A LOCAL RADIO program in the Washington, DC, area entertains rush hour motorists and assists them in passing time in long lines on trips home. Dialogue between the announcers leads into a "DIDJUNO" ("DID YOU KNOW") segment providing entertaining and informative trivia. DIDJUNO:

• You can request development of instrument procedures for civil airfields using civil NAVAIDs? For helicopter operations this can be extremely beneficial in obtaining lower minimums. For example: Your unit's mission requires flying to locations publishing only circling approach minimums. If a copter procedure is available better approach minimums result. Why? *Circling only minimums* (using fixed wing criteria) are published when the following occurs:
—Alignment of the final approach course does not meet TERPs criteria.
—Descent gradient on final exceeds TERPs criteria. Helicopters are not dependent on alignment and their TERPs criteria allow for a steeper descent gradient. So, it is logical: better minimums result. We wait for your requests!

• Airports are indexed differently in approach books than in the IFR Supplement? For the U.S. IFR Supplement, the cross-reference index is contained in the VFR Supplement. Confusing? You bet! Because someone filled out a COMM Card telling us about the problem, we initiated a change. Our first proposal to index supplements similar to IAP books was approved. A cross-reference index will be placed in back of the U.S. IFR Supplement. We proposed for airports with only radar approaches, that an airport sketch be added to the back of the U.S. IFR Supplement. These changes should make it easier to locate destination airfields and eliminate the need for a VFR Supplement.

• Last year, only five quality feedback cards were sent to DMAAC about paper or binding deficiencies in DOD terminal products? About 4,254,400 terminal books were distributed, so the products are adequate for normal handling during the 28 to 56 day life cycle. If you don't report problems with any FLIP product, little can be done to improve the product. Use QUALITY FEEDBACK CARDS in the supplements to express all noted deficiencies in *quality*; otherwise, we'll think everything is OK when it's not.

• On U.S. en route charts, we depict an airfield with its name enclosed in parentheses? Legend says "military landing rights not available." No one knows what this means. It isn't explained in FLIP or other accessible references. A recent FIB article explains it. Military landing rights not available means no written agreement exists between airport management and the military. You can use the airport unless a published restriction is in the airport remarks section. An airport marked "PVT" is restricted from use except in emergencies or with permission of the airport owner/manager. We recommend the parentheses be removed from all airports on the en route charts since this is of little significance. If this doesn't work, we will publish an explanation in FLIP and correct the En Route Supplement legend to reflect the real meaning of a "PVT" airport.

• We plan to republish a special edition FIB titled "Use of U.S. Government Terminal Instrument Procedures Charts"? It will replace FIB 1186, 13 July 1984, same subject. Request your assistance in providing recommendations for improvement, corrections and/or any new material you want added; phone, message, COMM Card or any means is OK.

• A major revision to AR 95-15 should be in the field soon after this article? This AR revision covers: Responsibilities of USAATCA; mapping, charting and geodesy requirements; sending changes to FLIP via COMM Cards; Service B, automated air facilities information files and aircraft nontactical call sign policy; obtaining terminal instrument procedures; and, aeronautical information publications requirements and distribution process.

Aviation personnel should be thoroughly familiar with the contents of AR 95-14.

• If you believe ATC treated you unfairly, we can intercede for you, to learn the details? But notify us as soon as possible after the incident. ATC handles you on a first-come first-serve basis. Also, tell us when you receive exceptional service from ATC. We'll get a pat on the right person's back.

Readers are encouraged to address matters concerning air traffic control to: Director, USAATCA Aeronautical Services Office, Cameron Station, Alexandria, VA 22304-5050.

The Past:
What Might Have Been

The Future:
What Can Be

Does the past dictate the future? If it does, to what extent and how should past lessons learned be effectively applied to the present? This article takes a historic glance at past conflicts and a look at Army Aviation's role in winning on tomorrow's air-land battlefield.

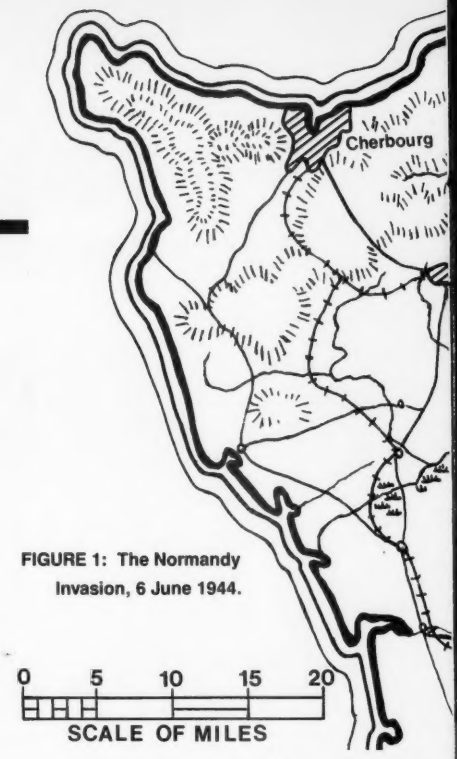


FIGURE 1: The Normandy Invasion, 6 June 1944.

ONE WISE SAGE postulated that in planning for successful battles on tomorrow's battlefield, we must carefully study and restudy lessons learned from past battles. If one considers the turmoil and uncertainties facing the free world today, this sound advice from the past may be more important than ever.

Well, with this in mind, you might say, "But, the Army Aviation Branch is relatively new to the battlefield, and we don't have lessons learned from the past to fall back on, as do the Infantry, Field Artillery and Armor Branches."

This is true; and, even though Army Aviation did play an ever increasingly important role during World War I (reconnaissance, observation, aerial combat, and, ultimately, interdiction), this was not the Army Aviation Branch as we know it today. Nor during World War II did Army Aviation possess the capabilities that our branch does today. Consequently it did not play a role that enables us to recall and reuse innovations in tactics and techniques that worked on the battlefield.

It was really toward the end of the Korean War before the helicopter's potentially tremendous impact on a conventional battlefield was recognized by visionaries. In the years immediately following the war, the helicopter's armament, tactical employment and medical evacuation roles were further developed along conventional lines, primarily at the U.S. Army Aviation Center, Ft. Rucker, AL. But from 1962 to 1972, Army Aviation was geared for a different role in a different kind of war and against a different kind of enemy. The Soviet ZSU-23-4 self-propelled automatic antiaircraft guns and SA-7 Grail surface-to-air missiles were introduced onto the battlefield, causing us to reorient our thinking toward conventional tactics.

Now, you have all read recent articles by key Army branch chiefs that clearly relate how Army Aviation will function and support tomorrow's battlefield from the Infantry, Armor, Field Artillery, Aviation and Air Defense perspectives. These are solid articles and should unquestionably impact on your units' training, tactics, techniques and procedures. (A list of these articles and how to obtain them is at the end of this article.) However, even these articles don't really give us concrete lessons that we need, from the past, nor will any other articles because they simply don't exist.

So let's take a bold approach to Army Aviation lessons learned on the conventional battlefield. *We'll*

Colonel Eugene Grayson
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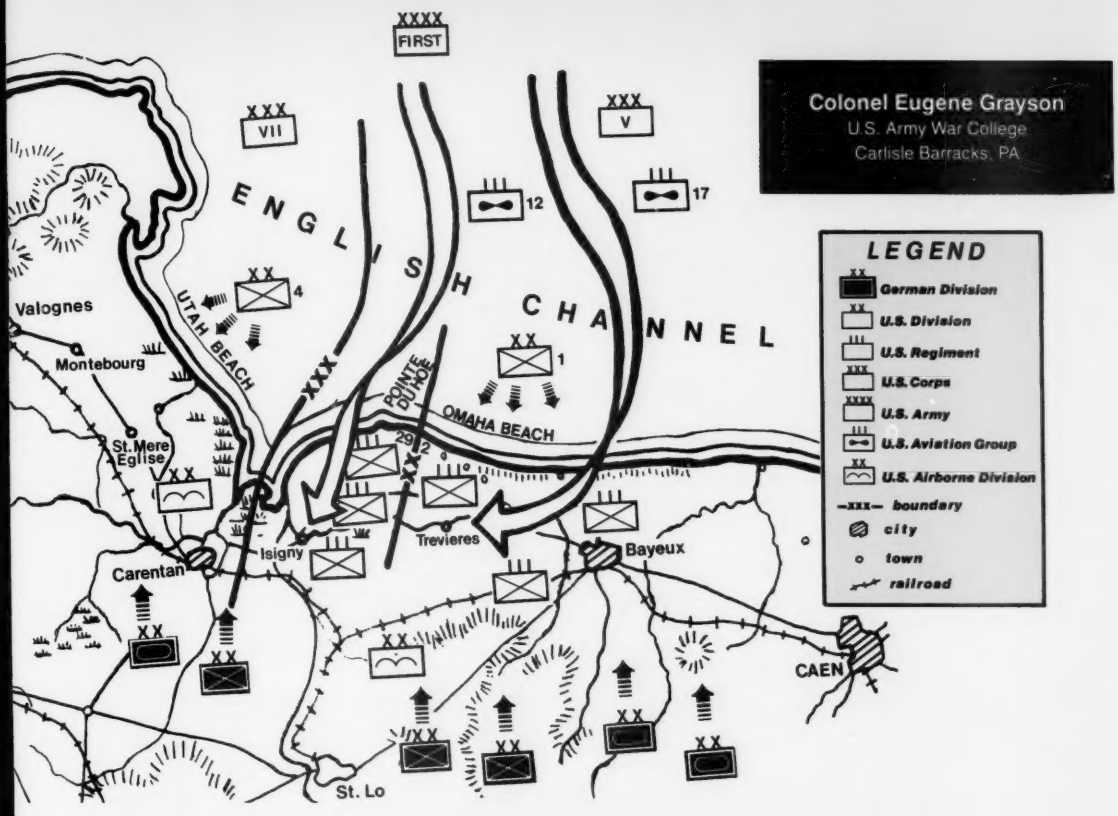
Carlisle Barracks, PA



make up our own. In looking for a starting point, let's go back to June 1944 and assume that Army Aviation then was the viable, well-equipped and well-trained force that it is today.

The scenario: Somewhere in southern England.

The players: The U.S. V Corps commander and staff; the commanders of the 1st, 2d and 29th Infantry Divisions; *and* the commanders of the 17th and 12th Aviation Groups.

The corps commander's guidance: "At 0530 hours, 6 June, the 12th and 17th Aviation Groups will air assault the leading regiments of the 2d and 29th Infantry Division, across the English Channel, into landing zones Isigny, Treviers, and along the Aure River (figure 1). The divisions will secure key road intersections, prevent enemy reinforcements from attacking Omaha Beach during the 1st Infantry Division's assault landing, and conduct linkup operations with the 101st Airborne Division, which will conduct a parachute operation behind Omaha Beach beginning 0100 hours on 6 June.

"It is essential that the initial air assaults place a full regiment from each division on the ground. I want the remaining regiments to be on the ground no later than H minus 6 hours. I also want to ensure that a minimum of one 105 battery for each regiment be carried by helicopter with the initial assault.

"On the corps' right flank, the 90th Infantry Division, VII U.S. Corps, will be air assaulted in to protect Utah Beach for the 4th Infantry Division and will link up with the 82d Airborne Division."

Does this sound like a preposterous mission for Army Aviation? Well, it shouldn't—not at all! I would challenge you to imagine the differences *between two infantry divisions attacking a hostile shore:*

- *First, envision troops off-loading from ships into vulnerable landing craft that are under constant enemy fire as they move ashore in formation at 5 knots; then the troops offload the landing craft and advance up a mine infested beach all the while under small arms, machinegun, mortar and artillery fire. The troops are loaded down with equipment. They conduct a frontal attack against a dug-in enemy who offers fierce resistance no matter how much air and naval gunfire support we provide.*
- *Now, envision the same troops being lifted by helicopters from a ship or friendly shore, traveling at 100 knots, low level, over multiple flight routes, along corridors protected by tactical air and naval gunfire, over the hostile beach, and*

landing at selected landing zones in the enemy rear area!

Impossible? Not at all! Yet there still are "naysayers" who loudly proclaim that the helicopter cannot survive on a mid-to-high intensity battlefield!

This criticism is not new. But a story told long ago by an "old soldier" offsets it and opens the eyes of doubters. The story was told in 1962 to a group of junior aviators during operations of the Army Tactical Mobility Requirements Board (Howze Board) by the XVIII Airborne Corps commander, General Hamilton H. Howze, about the merits of the helicopter on the modern battlefield. General Howze had been involved in rather heated discussions with Defense Department staffers who were convinced that the helicopter was really not suitable for any combat operations other than for counterinsurgency operations. There was no doubt in their minds that the helicopter was nonsurvivable on any conventional battlefield.

I will always remember General Howze's comment to this assertion that questioned the survivability of the helicopter in combat. He replied, "Well, you folks said the same thing when we were planning the Normandy invasion . . . that the boats were too slow; they were too vulnerable; and the landings might not succeed. Yet, it did succeed, as did others throughout the Pacific; and the boats were far more vulnerable than the helicopter, regardless of the intensity of the combat environment."

Leaving our Normandy Beach example, now imagine the impact of Army Aviation support at Salerno, Italy, during World War II, had a regiment from the 45th Infantry Division been air assaulted into the road junction east of Altavilla in order to block the German 29th Panzer Division from attacking the beachhead. Envision what a high toll the light infantry units supported by attack helicopters would have taken of the enemy armor units moving over a single road through a narrow mountain pass! Or, during the Fifth Army's advance northward in September and October 1943, where U.S. troops suffered terrible casualties crossing the Garigliano and Rapido Rivers and during torturous fighting through the Apennine Mountains.

Would it have been better to have air assaulted the 34th and 45th Infantry Divisions over these rivers and into strategic terrain in the mountains, rather than conducting those costly frontal assaults to achieve success?

What would have been the outcome at Guadalcanal in early February 1943 in the South Pacific during World War II, had the 25th Infantry Division conducted an air assault behind enemy lines in support of the 1st Marine Division, which instead had to slog through dense jungle where progress was measured in yards? Or, what would have happened in New Guinea in October 1943, had the 32d Infantry Division been air assaulted over the Owen Stanley Mountains to seize Samarai Bay, instead of infantry fighting for more than 2 months almost in single file to seize the port city?

Think about what might have been if we had been able to put several Army Aviation groups offshore at Leyte in October 1944 when the U.S. Sixth Army went ashore, and if we had been able to air assault the 24th Infantry Division inland to seize key road junctions at Cavite and Sante Fe.

How much easier would the Tenth U.S. Army's job have been at Okinawa, if the 7th Infantry Division had been air assaulted inland to secure key road junctions, thus preventing the enemy's 62d Infantry Division from reinforcing its defensive lines?

Finally, from a World War II perspective, would there have been "a bridge too far," had a light infantry division supported by attack helicopters air assaulted onto the final bridge, rather than using airborne forces that were far too immobile and vulnerable to do the job?

If today's air assault operations had been available during the Korean War, they would have enhanced every battle fought, from attack helicopters supporting TASK FORCE SMITH to air assaulting the 7th Infantry Division inland in conjunction with the 1st Marine Division landing at Inchon in order to secure key lines of communications leading into Seoul. If you've been in Korea, you know it's "infantry country"; air assaults by light infantry forces on key terrain features, right along with towed artillery, would have been absolutely invaluable. And, finally, imagine the difference in the outcome on the ground, had light infantry units been air assaulted in a classic deep attack into Kimpo and Munsan, rather than parachute drops by the 187th Airborne Regiment during the drive north by the U.S. Eighth Army. (Army Aviation maneuver operations in Korea with Infantry and Armor have been the subject of intense study and development for many years. Much of it has been highlighted in *Aviation Digest* articles. A listing and how to obtain copies of these articles is at the end of this article.)

You may be wondering just what is the purpose for all of these hypothetical "what ifs" regarding an Army Aviation scenario that never existed in our last two conventional wars. Simply speaking, the key point is that during World War II and the Korean War, troops went ashore in vulnerable landing craft; attacked hostile beaches; crossed countless well-defended river lines; fought through jungles and forests; fought up and down steep mountains and across rugged desert terrain—and did all of these things brilliantly! So, the naysayers who think that the helicopter on the World War II and Korean War battlefields would not have been abso-

Army troops swam ashore from an amphibious landing craft at Omaha Beach on the D Day invasion on 6 June 1944. They braved heavy enemy crossfire from concrete pillboxes and intense artillery and mortar fire in the successful invasion of France.

Major General Hamilton H. Howze, championed the development of Army Aviation airmobile and air assault tactics in the early 1960s. Concerning helicopter survivability in combat, he countered "naysayers," saying they also questioned survivability of amphibious landing craft. He contended that landing craft were more vulnerable than helicopters, but were still highly successful.

lutely invaluable are dead wrong! Moreover, those who loudly advocate *no more light divisions and helicopters on the mid-to-high intensity battlefield of tomorrow* need to reread their military history books.

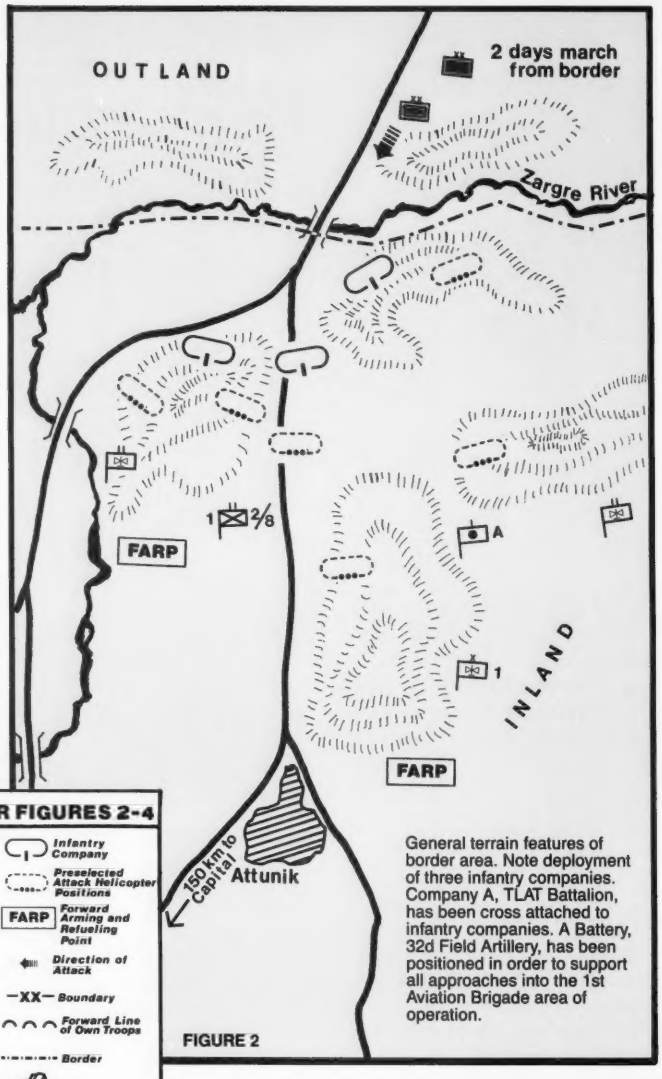
During World War II in Europe, 57 of the 80(+) Allied divisions were Infantry; in North Africa, 13 of 17 were Infantry; and in Italy it was 16 of 19. All in the United States were Infantry divisions; with the Sixth and Eighth Armies in the Philippines and in Korea, respectively, we unquestionably had "Infantry" wars—which they most likely would continue to be in future conflicts in those areas.

One of our senior Army aviators, in a recent article in one of our more illustrious military magazines, completely misses the boat when he badmouths light forces and, in particular, calls for disbanding the 2d Infantry Division. I would only suggest he take a careful look at the terrain on both sides of the 38th Parallel in Korea and look for places where armor can run rampant, as it did on the vast Soviet Steppes during World War II. If that is not convincing enough, ask any Israeli tank battalion commander who fought in the Sinai 1973 Mideast War, "What killed the majority of Israeli tanks?" You might be surprised to find that it was Egyptian light infantrymen with antitank weapons! Also take a close look at the terrain in both the U.S. V and VII Corps' areas of operations in Germany and you might be surprised to find that some 60 percent of it is still good "Infantry country."

So let's relook, in two respects, this Army Aviation Branch that we have today:

- We must never forget our lasting marriage to the light infantry.
- For the sake of this article, boost our thinking above company, and even battalion level, and let's *"think big."*

Let's not talk about air assaulting Company A to Hill 703, or placing an attack section in support of a company team, etc. Instead, let's get up to an operational level and, furthermore, let's look only at worst case scenarios. Then let's look at getting there, maneuvering



General terrain features of border area. Note deployment of three infantry companies. Company A, TLAT Battalion, has been cross attached to infantry companies. A Battery, 32d Field Artillery, has been positioned in order to support all approaches into the 1st Aviation Brigade area of operation.

FIGURE 2

and fighting there, sustaining our positions there, and, yes, winning there.

As a first example, consider an unexpected crisis that requires a rapid response. It calls for a strategic deployment that involves a power projection ashore, followed by a rapid employment over a lengthy distance, emplacement of troops and equipment, and combat—anywhere in the world. Let's examine our worst case situation and look 12,000 miles away to Southeast Asia. Our scenario sees an unfriendly government openly sponsoring an insurgency against an ally.

As events unfold, the insurgents invite into the conflict a third country that readily responds. Consequently, we find elements of a motorized rifle division and a tank division moving southward. They are expected to reach the border in 72 hours.

The situation facing our senior planners (once the decision has been made to deploy) is who, what, where, when and how! In other words, what force can rapidly deploy, reassemble and become immediately tactical, with appropriate firepower and sustaining capability?

The point is, what do we have that can get to a port of embarcation; reassemble at the other end; move 150 miles north; employ; engage armor and motorized forces; and prevent the two threatening divisions from passing through the mountains along the border, thus allowing open maneuver room for a drive on the capital city? Punch all of this into the magic computer and out pops the card which says, "Deploy an aviation brigade; attach a light infantry battalion, a towed 155 howitzer battery, a light engineer company, and a TOW light antitank (TLAT) company. Other attachments will be determined."

"Who are you kidding?" one might ask. "Do you mean to deploy an aviation brigade 12,000 miles away in order to fight a tank and motorized division, should these units cross a border? And, what in the world do you mean by attaching nonaviation units to an aviation brigade?"

Unlikely? Why not? What's the difference? This kind of cross attachment is not new, and it will not pose any difficulties for the aviation brigade commander to manage such units.

There is no reason the brigade staff should experience any unusual difficulties in this situation. Some surely will say, "We must deploy armor to fight armor!" They may be right but neither time nor available airlift will permit this, and in all likelihood, armor could not do the job in this situation—at least not as effectively as can the aviation brigade (reinforced).

The situation: H minus 5 days.

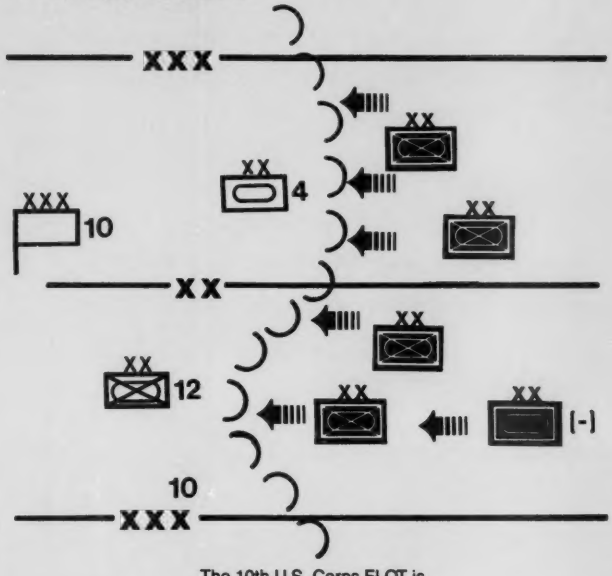
Location: Hunter Army Airfield, GA.

The mission: "The 1st Aviation Brigade (Reinforced) will deploy by military airlift from Hunter AAF to the International Airport in INLAND. Upon arrival, you will be under operational command of USCENTCOM. Your mission is to deploy north to the Zarge River and establish defensive positions to delay the enemy tank and motorized divisions for 72 hours if they cross the border into INLAND.

"You will have attached to the brigade, the 1st Battalion, 2d Brigade, 18th Light Infantry Division; Company C, 28th Engineers (light); A Battery, 32d Field Artillery (towed 155); and, Company A, TLAT Battalion. We will discuss additional attachments. It is essential that you reassemble the brigade rapidly upon arrival and move to the Zarge River. This is a 150-mile move over rugged terrain, and the use of key bridges is questionable at this time. The Ninth U.S. Air Force will deploy a composite F-16/F-15 fighter wing and one A-10 attack squadron. Forward air controllers will deploy with the brigade, and will control close air support from scout helicopters. Within 72 hours following your arrival in INLAND, advance elements from the 12th Mechanized Division will begin arriving (figure 2)."

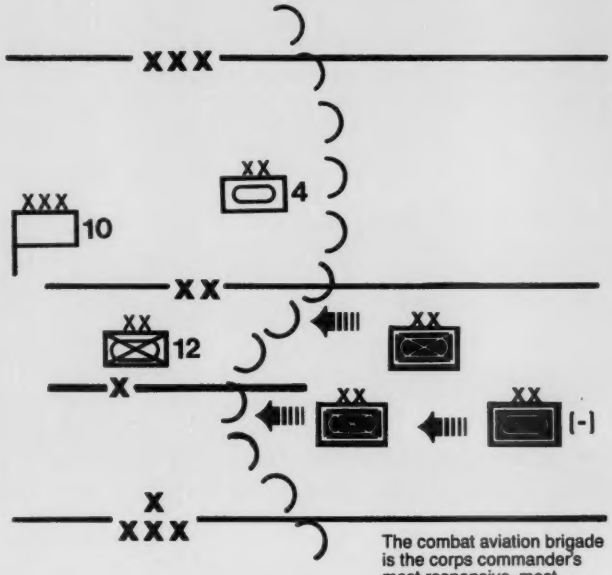
This is an ideal mission. Strategic lift assets are limited, and it is essential to get a tailored unit into the theater quickly—one with the necessary mobility, command, control and communications, a tank-kill-

When divisions are locked in decisive combat at the FLOT, commanders cannot withdraw units to engage penetrations.



The 10th U.S. Corps FLOT is in serious jeopardy of being ruptured.

FIGURE 3



The combat aviation brigade is the corps commander's most responsive, most maneuverable and the *only* unit that contains all of the essentials to handle this penetration.

FIGURE 4

ing ability, and the capability to sustain combat. What better choice is there for this particular situation than the aviation brigade (reinforced)? What you end up with is a unit that can:

- Rapidly deploy,
- Maneuver regardless of terrain obstacles,
- Provide an excellent reconnaissance capability,
- Furnish an airlift towed artillery,
- Rapidly position tank-killer teams and kill tanks and other armored vehicles,
- Position and sustain forward arming and refueling points,
- Conduct flank attacks and joint air attack team operations.

The list goes on and on.

What we have here is an extremely difficult situation where U.S. forces will be committed across a distance of 12,000 miles with *time* being the key ingredient. I suggest to the strategic planners that there is not a unit better suited to accomplish the mission in this scenario with the same degree of success as the aviation brigade (reinforced).

Let's move into another high intensity scenario where a U.S. corps has suffered a major penetration, and if the enemy advance is not halted the entire forward line of own troops (FLOT) and corps' rear area will be in jeopardy (figure 3, page 43). This, of course, will result in a disaster deep in the rear area.

This is about as bad a situation as our planners care to portray. How will this penetration be dealt with? Where are the assets—the combat forces that can rapidly maneuver to engage the penetration? It's certainly not the division support command or corps support command units! Who will manage rear area close air support, rear area artillery, direct combat and combat support units, etc? Well, one might wonder if our doctrine and planning that talks about rear battle and rear battle combat operations is going to work in a scenario that sees every form of detailed planning, commander's guidance, command, control and communications (and so forth) go to pieces. It should be obvious that the combat units on the FLOT are locked into decisive combat. No division commander can give up an armor or mechanized brigade to withdraw from the fight at the FLOT and engage the penetration. Yet the penetration must be stopped.

Which unit has the ability to move rapidly, regardless of terrain; deliver devastating antitank and antipersonnel firepower; conduct joint air attack team operations with whatever type aircraft are available; direct artillery fire; direct close air support strikes; deploy infantry tank-killer teams; move combat engineers wherever needed; and on and on? And, of the greatest significance during a precarious scenario such as this, which unit can get a handle on the tactical situation, a first-hand update on the enemy location, talk to the division and units in a retrograde, and rapidly emplace aerial delivered mines? Well, what about the aviation brigade?

Assign the penetration to the aviation brigade commander (figure 4, page 43). Things are in a pretty bad state and the division commanders are barely hanging on. To maneuver anywhere is impossible. Now, I challenge the naysayers to come up with a better option than to commit the aviation brigade! What else is there that can do the job in the same successful manner? Nothing!

Just what is the magnitude of the penetration facing the corps commander? Well, if the FLOT ruptures, he is faced with the possibility of at least 300 tanks and some 400 troops and airborne assault gun BTR/BMD armored vehicles heading deep into, and raising havoc, in his rear area. If this is not halted, it could well result in the battle ending in unfavorable terms for the corps commander.

Is the aviation brigade the right unit to use in such a situation? *Think big!* In the aviation brigade you have a command and staff group that:

- Is intact;
- Is accustomed to responding to rapid mission orders;
- Is used to commitment into tough combat situations;
- Fully understands the corps' mission;
- Has excellent command, control and communications;
- Can physically locate units, friendly and enemy;
- Can position infantry tank-killer teams wherever needed;
- Can direct artillery fire and rear area close air support missions; and, of the greatest significance,
- Can move quickly, mass antiarmor fire and kill tanks!

Assign the job to stop the enemy's penetration to the commander of the aviation brigade.

The corps commander has, in effect, committed into battle 40 plus antiarmor systems that possess a tremendous tactical advantage over attacking armor. Tanks are buttoned up; road networks are restrictive; the terrain favors the defender, particularly the attack helicopter. If attack helicopters kill from 10 to 40 tanks during training exercises, why not the same result during actual combat, where well-trained attack helicopter crews attacking from well-concealed positions are engaging enemy tanks amidst all of the battlefield confusion? Add to this the fact that our ground forces are still vigorously engaging enemy armor and mechanized forces inside the penetration. Good infantry mathematics would result in each attack helicopter killing five to six tanks, thus causing the penetration to grind to a halt. Will this kill ratio always occur? Probably not. Some will kill 1, others will kill 20. The

same holds true for the enemy's BTR/BMD armored vehicles. However, the fact is that we have nothing other than the aviation brigade on the battlefield that can:

- Respond to a serious tactical situation such as a major penetration.
- Maneuver rapidly.
- Effectively eliminate the enemy's thrust.

Does this imply that the aviation brigade alone will eliminate the two attacking enemy divisions that have ruptured the corps FLOT? Certainly not! Tactical air strikes, directed by aviation brigade aviators will take a high toll of attack by armor and mechanized forces; light infantry tank-killer teams, moved by lift assets, will kill tanks; combined joint air attack team operations will kill tanks; Field Artillery missions, coordinated by aviation brigade aviators, will disrupt and delay enemy forces; engineers, moved by Army Aviation assets, will emplace mine fields, other obstacles and blow bridges; attack helicopters, joining friendly tank units, will kill tanks together—and the list goes on. If more attack helicopter assets are needed, attach them to the aviation brigade. No unit can do the job better!

Aviation commanders, it's time to start thinking BIG! Think about strategic deployment; power projection ashore; the effectiveness of Army Aviation and light infantry forces. Fight vigorously to ensure that aviation assets are not piecemealed out during the battle. Spread the word on just what Army Aviation can do for your commander, regardless of what kind of unit he commands. Get your head out of section and platoon tactics and start thinking on a more operational level. Be *bold and imaginative* in developing tactics, techniques and procedures to conduct aggressive combat action on the battlefield.

Execute long-range operations, where speed is essential and obstacles pose no barriers. In places and exercises such as Yakima, WA; Ft. Hood, TX; Korea; REFORGER; etc., demonstrate to your commanders the awesome firepower and tank-killing capability of the attack battalion when massed. Let the ground commanders know that the 2.75 inch rockets fired from one attack company equal the firepower of an entire division artillery. Get your ground commander in the front seat of the attack helicopter and let him track a tank with the telescopic sight unit. Show him the maneuver capability of your attack unit. Let your division commander "feel" the punch Army Aviation packs—let him fire a TOW at max range.

Captains and majors, *at every opportunity* let ground commanders you support know just what the capabilities are in the Army Aviation units you command. Get involved in air-land battle doctrine. When your counterparts start discussing the deep attack—*get involved*! Tell them how, in a desert environment, the aviation brigade can boldly move around the flank of a major enemy force, at rapid speeds, below radar coverage, during periods of darkness or limited visibility, and raise hell with the enemy by destroying his armor or motorized forces some 60 to 75 kilometers across the FLOT.

THINK BIG, be aggressive and never forget what can be—what *must be*—Army Aviation's role on tomorrow's battlefield.

Copies of the following articles can be obtained by writing to *Aviation Digest*, P.O. Box 699, Ft. Rucker, AL 36362-5000, or calling: AUTOVON 558-3178; FTS 533-3178; or commercial 205-255-3178.

Korea and Team Spirit 84:

- "Roller Coaster Operations Across the FEBA," Lieutenant Colonel William C. Page Jr., March 1980.
- "An Army Aviation Overview," Major General Kenneth C. Leuer, August 1984.
- "Profile of Army Aviation in Korea," August 1984.
- "View From the Eagle's Nest," Colonel William C. Page Jr., August 1984.
- "Fit to Fight," Captain Thomas F. Hands, September 1984.
- "Dustoff Does It Better," Captain Thomas Bailey, September 1984.
- "45th Transportation Company Keeps 'Em Flying," Major Robert Foote, September 1984.
- "Managing Team Spirit Airspace, Dirt to 600," Major Maurice Brooks, October 1984.

Army branch chiefs' articles concerning combined arms operations:

- "Attack Helicopter Operations on the Heavy Battlefield," Major General Frederic E. Brown, Armor Branch chief, July 1985.
- "The Combat Aviation Brigade in the Light Infantry Division," Major General John W. Foss, Infantry Branch chief, August 1985.
- "Field Artillery and Army Aviation," Major General John S. Crosby, Field Artillery Branch chief, February 1985.
- "The Challenge of Winning," Major General Ellis D. Parker, Army Aviation Branch chief, September 1985.

TERRY
AND THE PIRATES
by
MILTON CANIFF
LET'S TAKE A WALK, TERRY...
YES, SIR, COLONEL CORKIN!
I'M GOING TO MAKE A SPEECH—AND IT'LL BE THE LAST ONE OF ITS KIND IN CAPTIVITY—SO DON'T GET A SHORT CIRCUIT BETWEEN THE EARS...
NO, SIR
WELL, YOU MADE IT...YOU'RE A FLIGHT OFFICER IN THE AIR FORCES OF THE ARMY OF THE UNITED STATES...THOSE WINGS ARE LIKE A NEON LIGHT ON YOUR CHEST...I'M NOT GOING TO WAVE THE FLAG AT YOU—BUT SOME THINGS YOU MUST NEVER FORGET...
...EVERY COUNTRY HAS HAD A HAND IN THE DEVELOPMENT OF THE AIRPLANE—BUT, AFTER ALL, THE WRIGHT BROTHERS WERE A COUPLE OF DAYTON, OHIO, BOYS-AND KITTY HAWK IS STRICTLY IN NORTH CAROLINA... THE HALLMARK OF THE UNITED STATES IS ON EVERY AIRCRAFT...
...SO YOU FIND YOURSELF IN A POSITION TO DEFEND THE COUNTRY THAT GAVE YOU THE WEAPON WITH WHICH TO DO IT... BUT IT WASN'T JUST YOU WHO EARNED THOSE WINGS... A GHOSTLY ECHELON OF GOOD GUYS FLEW THEIR HEARTS OUT IN OLD KITES TO GIVE YOU THE KNOW-HOW...
...AND SOME SMART SLIDE RULE JOKERS SWEAT IT OUT OVER DRAWING BOARDS TO GIVE YOU A MACHINE THAT WILL KEEP YOU UP THERE SHOOTING ... I RECOMMENDED YOU FOR FIGHTER AIRCRAFT AND I WANT YOU TO BE COCKY AND SMART AND PROUD OF BEING A BUZZ-BOY...
...BUT DON'T FORGET THAT EVERY BULLET YOU SHOOT, EVERY GALLON OF GAS AND OIL YOU BURN WAS BROUGHT HERE BY TRANSPORT PILOTS WHO FLEW IT IN OVER THE WORST TERRAIN IN THE WORLD! YOU MAY GET THE GLORY-BUT THEY PUT THE LIFT IN YOUR BALLOON!...
...AND DON'T LET ME EVER CATCH YOU BEING HIGH-BICYCLE WITH THE ENLISTED MEN IN YOUR GROUND CREW! WITHOUT THEM YOU'D NEVER GET TEN FEET OFF THE GROUND! EVERY GREASE MONKEY IN THAT GANG IS RIGHT BESIDE YOU IN THE COCKPIT— AND THEIR HANDS ARE ON THAT STICK, JUST THE SAME AS YOURS...
...YOU'LL GET ANGRY AS THE DEVIL AT THE ARMY AND ITS SO-CALLED RED TAPE...BUT BE PATIENT WITH IT... SOMEHOW THE OLD EAGLE HAS MANAGED TO END UP IN POSSESSION OF THE BALL IN EVERY WAR SINCE 1776—SO JUST HUMOR IT ALONG...
14th AIR FORCE
U.S. A.F.
OKAY, SPORT, END OF SPEECH... WHEN YOU GET UP IN THAT "WILD BLUE YONDER" THE SONG TALKS ABOUT—REMEMBER, THERE ARE A LOT OF GOOD GUYS MISSING FROM MESS TABLES IN THE SOUTH PACIFIC, ALASKA, AFRICA, BRITAIN, ASIA AND BACK HOME WHO ARE SORTA COUNTING ON YOU TO TAKE IT FROM HERE! GOOD NIGHT, KID!
10-17
This way to TOKIO!
Next stop U.S.A.

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